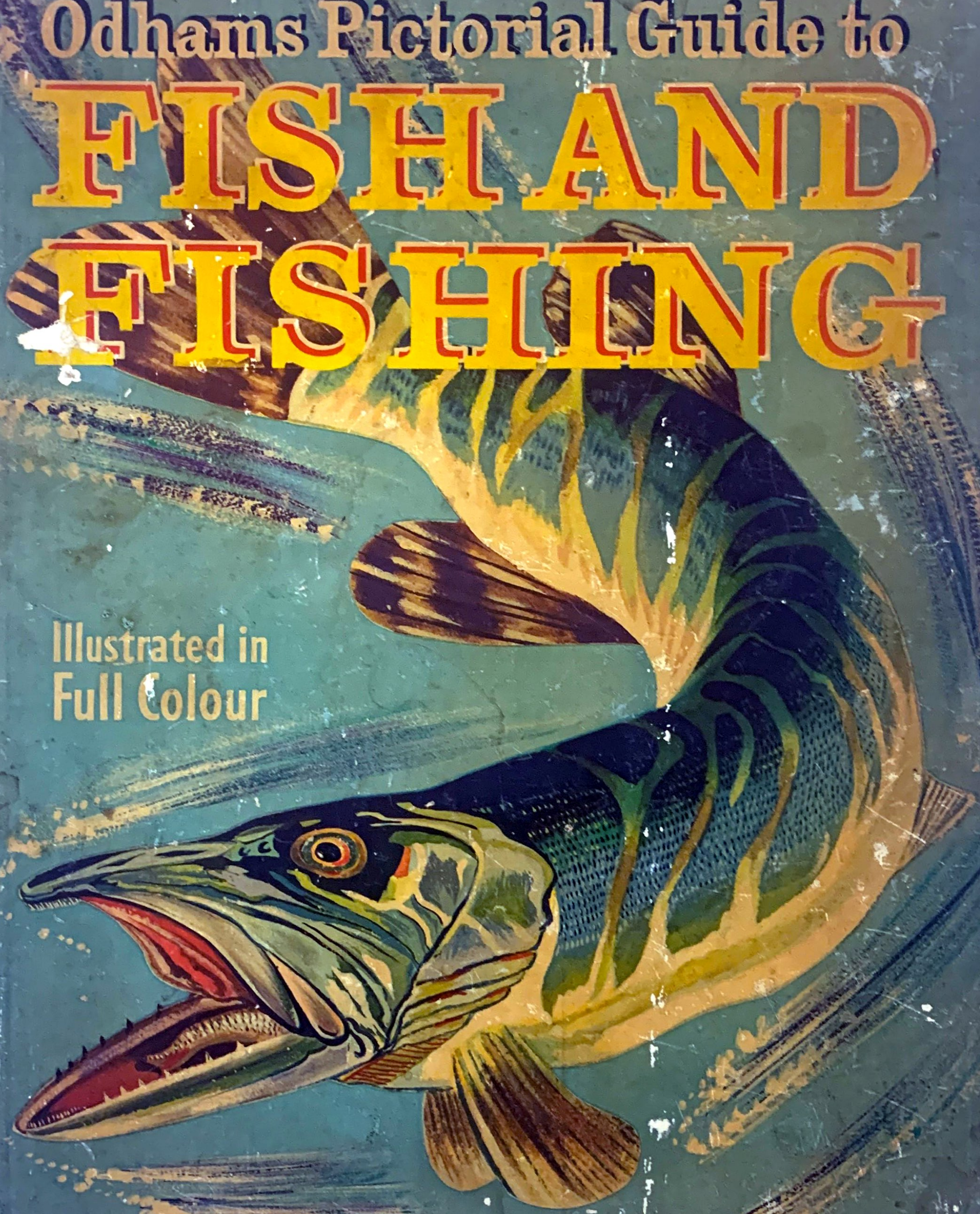
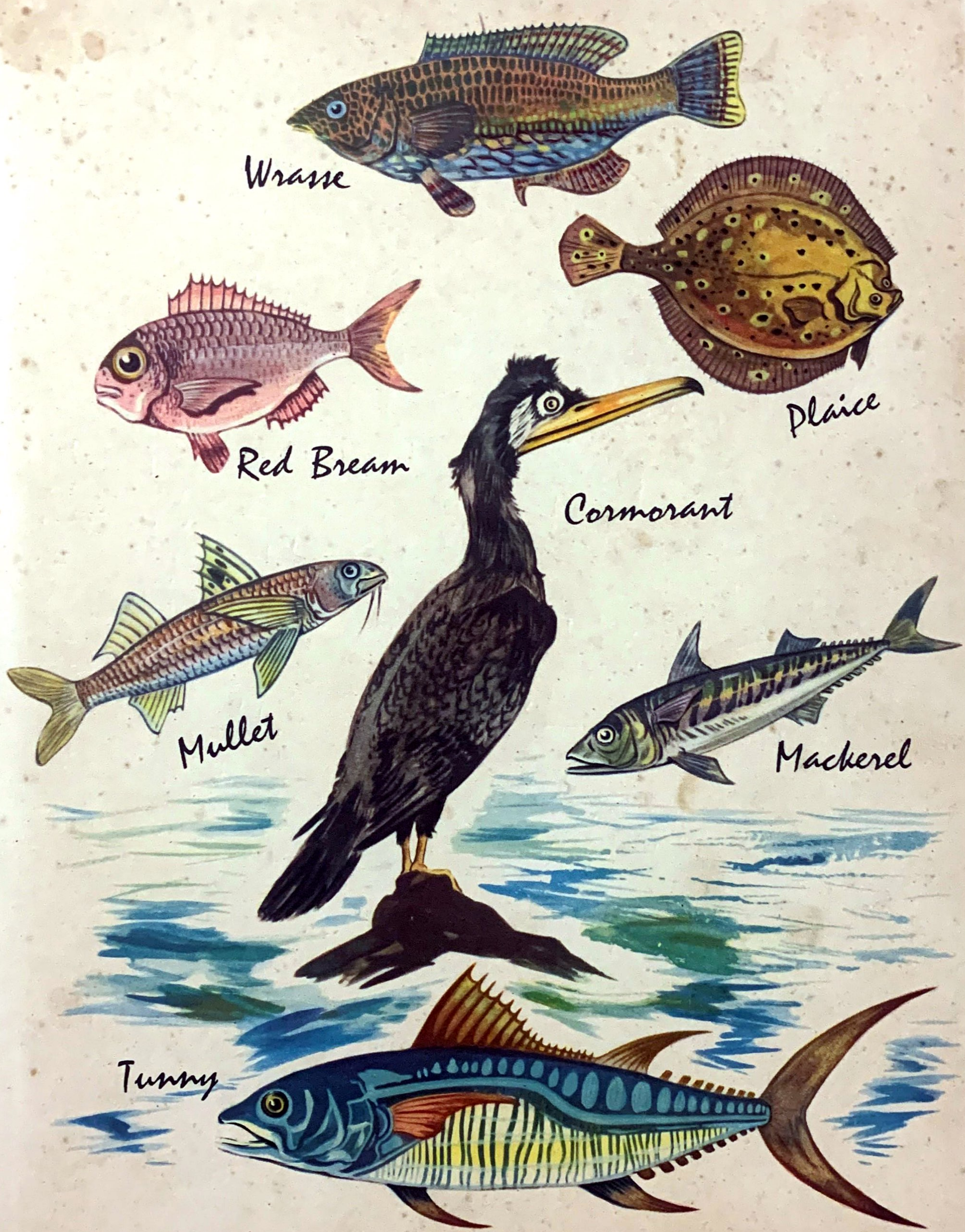
Odhams Pictorial Guide to

FISH AND FISHING



Illustrated in Full Colour

Roach
Trout
Bleak
Bream
Kingfisher
Tench
Gudgeon
Perch
Pike


Wrasse
Plaice
Red Bream
Cormorant
Mullet
Mackerel
Tunny

ODHAMS PICTORIAL GUIDE TO

FISH AND FISHING

by Jerome Nadaud

With water-colour illustrations
by Maurice Parent

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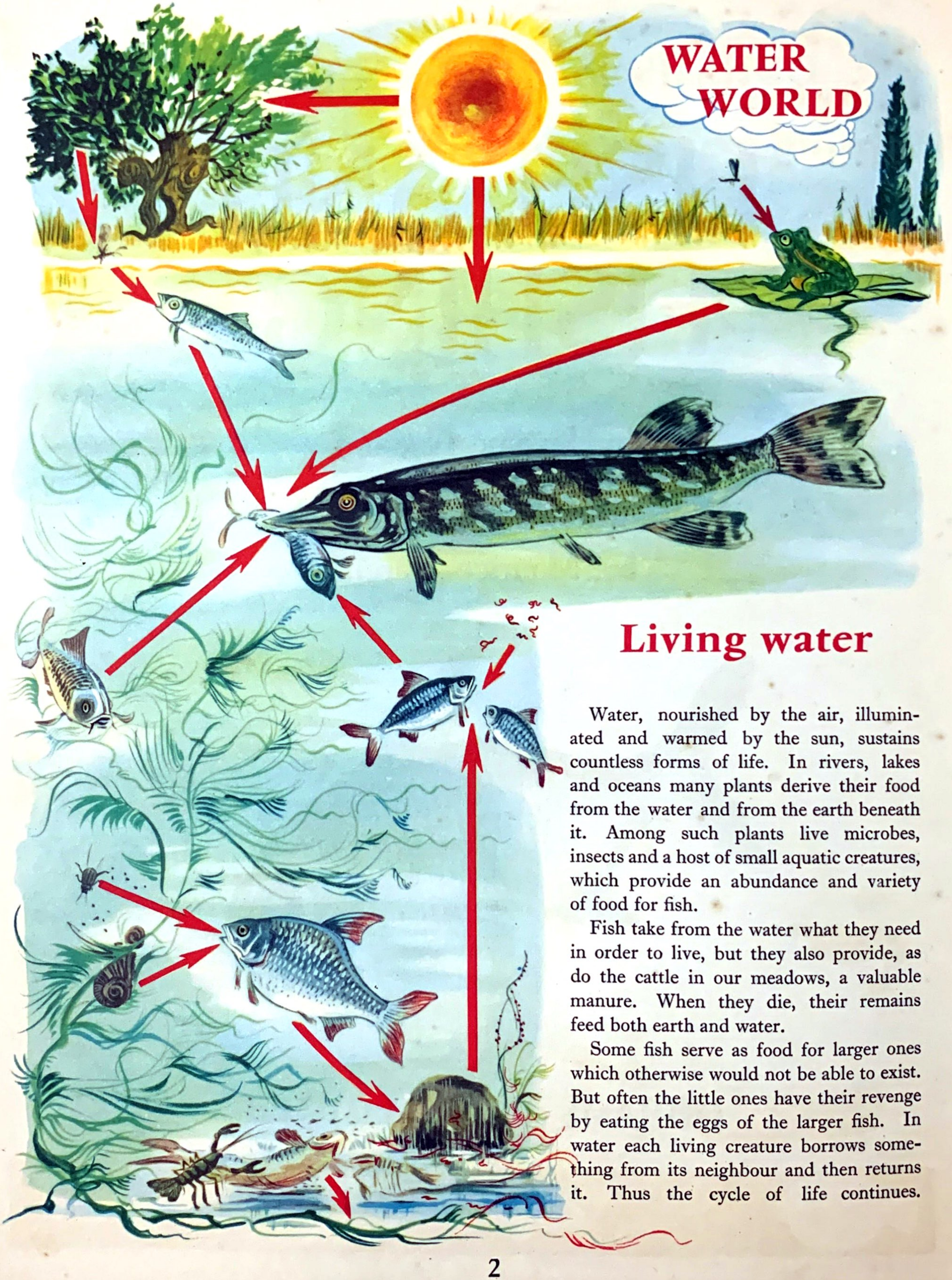
WATER WORLD



Living water

Water, nourished by the air, illuminated and warmed by the sun, sustains countless forms of life. In rivers, lakes and oceans many plants derive their food from the water and from the earth beneath it. Among such plants live microbes, insects and a host of small aquatic creatures, which provide an abundance and variety of food for fish.

Fish take from the water what they need in order to live, but they also provide, as do the cattle in our meadows, a valuable manure. When they die, their remains feed both earth and water.

Some fish serve as food for larger ones which otherwise would not be able to exist. But often the little ones have their revenge by eating the eggs of the larger fish. In water each living creature borrows something from its neighbour and then returns it. Thus the cycle of life continues.

Water is always moving

Rain and snow fall on high mountains and give rise to streams and torrents that leap towards the valleys. Their waters are cold, swift and unsuitable for the development of aquatic life on any appreciable scale. They provide shelter only for a few trout.

In the valley the torrents converge and become a stream or river. Various kinds of water plants grow. And there appear trout, barbel, gudgeon, first, and then roach, perch, bream, dace, pike and other species.

The river flows on through wide valleys like a broad blue-grey furrow. The number, variety and size of fish it contains largely depends upon the nature of the river bed, the depth and purity of its water, and the amount of plant life it holds.

Near streams and rivers we see lakes and ponds, where carp, tench and rudd are to be found. The river continues on its way towards the sea, where it is lost in salt water. Soon, above the oceans, clouds form and these are blown by the winds towards the land. Rain and snow fall and the water begins once again its never-ending journey.

Panorama of water life

All known living creatures from the most rudimentary to the highly developed vertebrates are classified by species, by families, according to similarities in their structure.

If a drop of water is examined under the microscope, we can see rudimentary creatures consisting of a single cell. These are the PROTOZOA, which form the basis of plankton on which fishes feed. We come next to the animals which resemble plants, such as the COELENTERATES, jelly-fish, sea anemones and coral, and SPONGES. Following the ECHINODERMS, which include starfish and sea-urchins, are the various branches of the worm family, including a host of animals living under the water, in the sand and in the mud.

The ARTHROPODS include principally the important class of INSECTS many of which live in the water or on the seashore, as well as the CRUSTACEANS, crabs and shrimps, for example. The next in classification are the MOLLUSCS, a branch which includes BIVALVES, two-shelled shellfish such as the mussel; the GASTEROPODS, snail-like shell bearing creatures; and CEPHALOPODS, such as octopus, squid and cuttlefish.

Finally we reach the VERTEBRATES, consisting notably of FISHES, some possessing a bony skeleton such as carp and perch, and others a cartilaginous, or gristly, skeleton such as sharks and sturgeons. The other vertebrates living in the water or on the seashore or waterside are the BATRACHIANS, frogs, toads, newts; various REPTILES such as snakes and crocodiles; and BIRDS.

At the top of the scale are MAMMALS including seals, sea-elephants and sea-lions; the *sirenians*, including the manatees, which gave rise to the legend of the mermaids; and finally the *cetaceans*, which include sperm whales and blue whales, the giants of creation.

The character and anatomy of fish

When held in the hand a fish seems cold and sticky. It is cold because the temperature of its body is equal to that of the water in which it lives. It is sticky because it is endowed with and protected by a slimy substance which insulates it from the liquid in which it moves about.

If we examine a fish we are first of all struck by its elegant shape, something like that of a streamlined vehicle. Nature has given the fish a shape which is at the same time pointed and rounded to assist its movement through the water, which can be very rapid. In fact salmon can reach a speed of 18 miles per hour and tunny, a sea fish, up to 36 miles per hour.

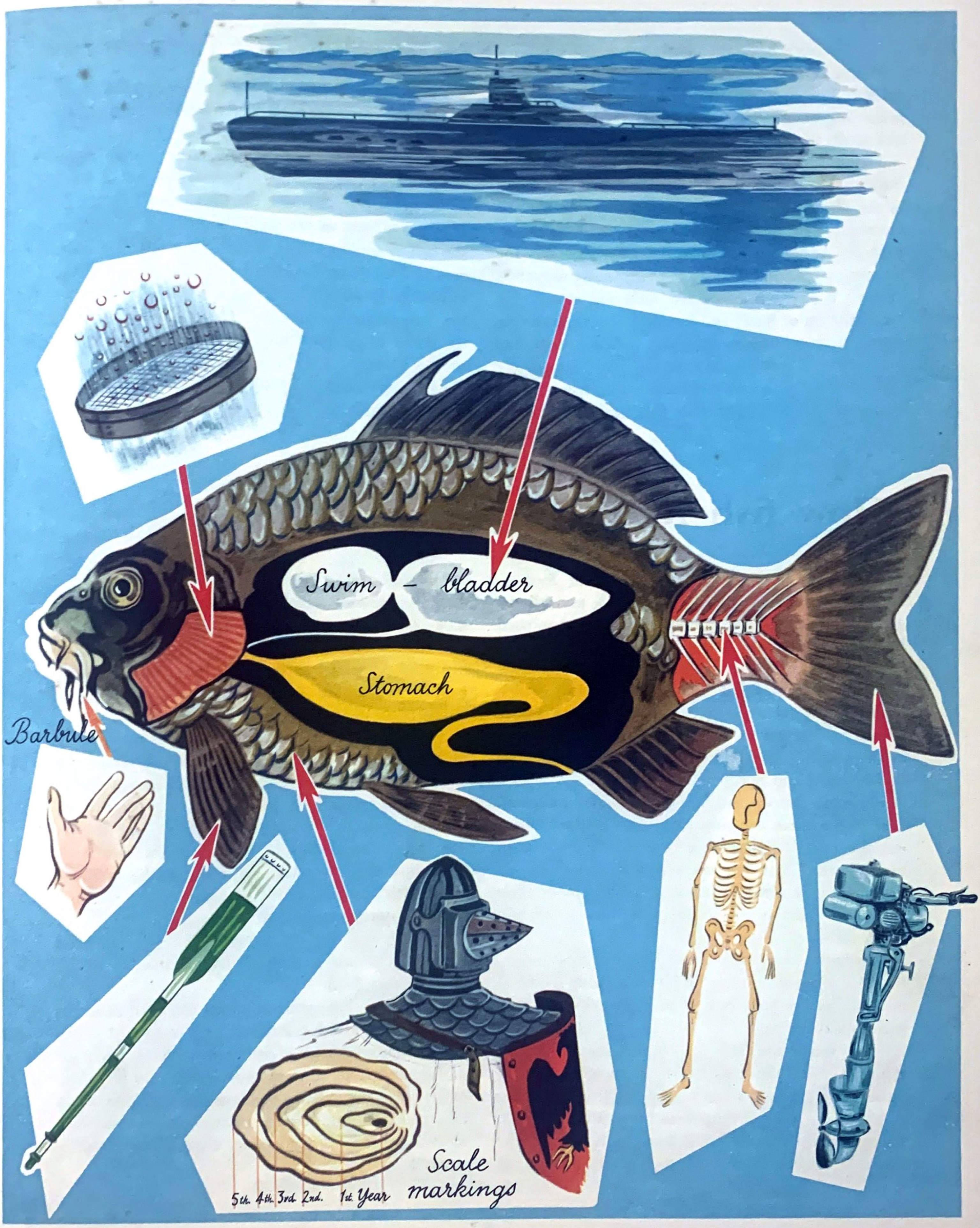
The body of the fish is covered with scales, generally of a fair size but sometimes so small that they cannot be seen with the naked eye. The scales are a kind of armour. They protect the fragile skin of the fish and grow larger as the fish grows older. The growth of the scales is, however, not regular. In winter, when food is scarce, fish sleep, half stupefied by the cold, and their scales stop growing. On the other hand, in summer when food is abundant and the fish move about a lot, the scales grow more quickly.

This alternation between periods of activity and repose can be read on the scales and makes it possible to determine the fish's age. The light parts of the scale correspond to summer, and the dark patches, which are very narrow, to winter. The reading starts from the central part which indicates birth.

Fish possess a number of fins, some being in the form of oar-shaped pairs which the fish use both for movement and steering. The fish's tail, also a kind of fin, is its principal means of propulsion and acts as a rudder.

Some fish have fleshy beard-like appendages to their mouths. These are very sensitive feelers, called barbules, which help the fish to seek out food.

When we cut open a fish we find that the bones are arranged symmetrically in relation to a central bone, the spine or backbone. Amongst the organs


Swim - bladder
Stomach
Barbule
Scale markings
5th. 4th. 3rd. 2nd. 1st. Year

inside the fish's body the most curious are the gills, protected by a gill cover attached to the creature's cheek. The gills, which are a pretty red colour, make respiration possible. They act as a sieve and retain the oxygen contained in the water.

The mechanism is simple: water is swallowed through the mouth and ejected through the gills; as the water passes through, the oxygen is retained absorbed in the sieve which transmits it to the blood. Like all vertebrates fish possess a heart, for the circulation of the blood; a liver; a reproduction system; a stomach connected with the mouth, for the digestion of food; and intestines for transmitting through the body nourishing material and the evacuation of waste products.

A curious fact is that carnivorous fish, that is to say those that live by eating other fish, have stomach and intestines that are very short; digestion takes place rapidly.

Fish that feed mainly on plant life have a more complicated stomach and longer intestines; digestion takes place much more slowly.

Finally, nearly all fish possess a special organ called the swim-bladder. This is a sort of small balloon, the size of which can be altered by the fish. It serves to buoy up the creature under water enabling the fish to sink or to rise at will. The swim-bladder acts as does the water-ballast in a submarine. If the ballast tanks of a submarine are filled with water the submarine submerges. If on the other hand the water is pumped out, the submarine comes up to the surface. Fish achieve the same results by blowing up or deflating the swim-bladder to suit the depth at which they wish to swim.

How fish feed

Every fish possesses a special way of feeding. Little by little from the dawn of time, as with the general appearance of the body, the organs used in feeding, particularly the mouth, have undergone changes. A fish that swallows its prey alive is differently constructed from another fish which lives on vegetable matter. In the streams nearly all white fish eat as the roach does. They draw in their food with water, taste it, swallow what they find is good, and reject unwanted matter.

Fish that live on the bottom feed by excavating. They nose their way into the mud or sand, drive out the food that is hiding there and gobble it up immediately, but not without first trying to test the quality by means of their sensitive lips or their barbules. This is how carp, gudgeon, barbel and tench eat.

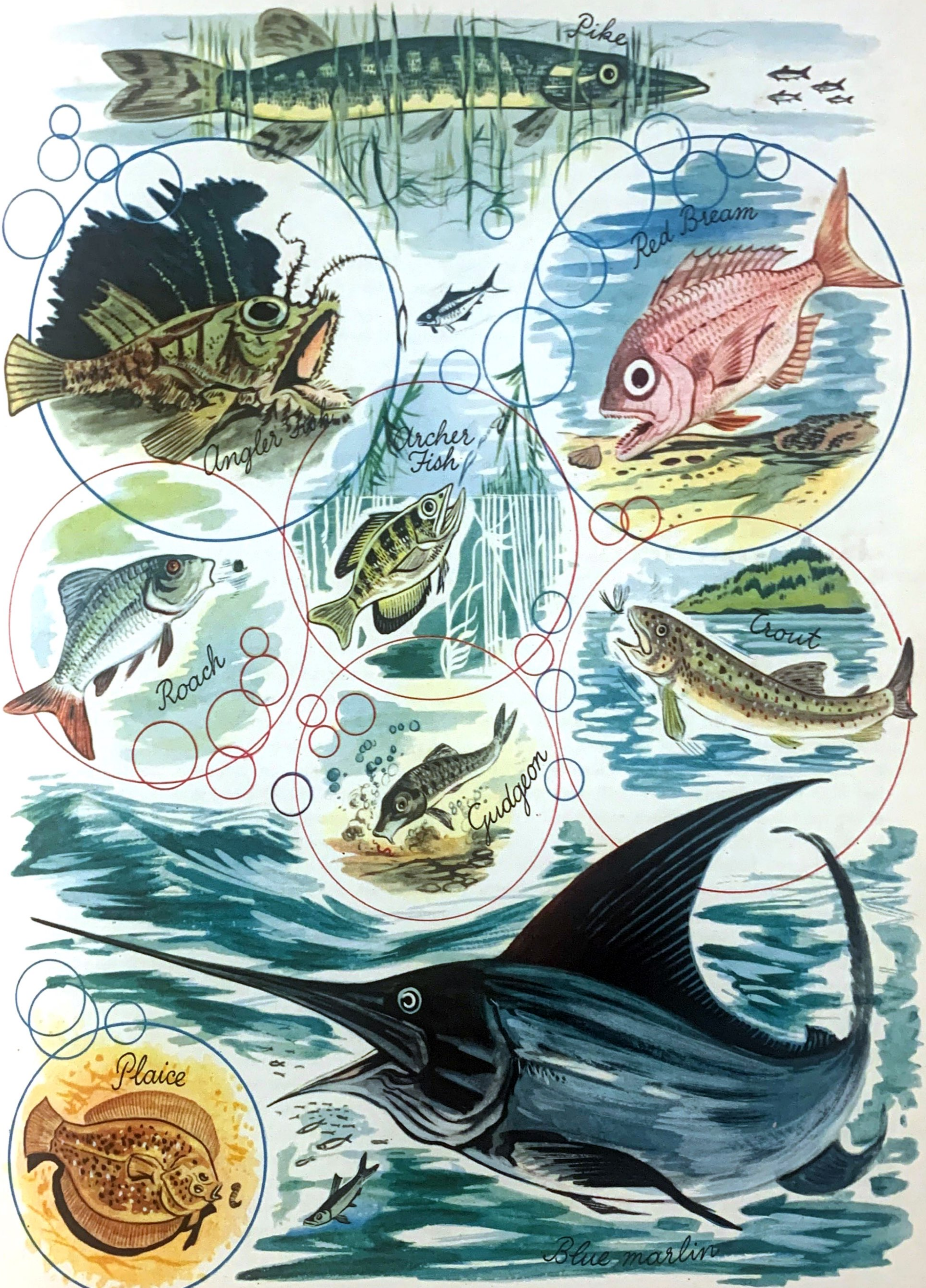
The biggest carnivorous fish found in fresh water, the pike, waits motionless for its prey, being rendered invisible by the colouring of its body which merges with its suroundings.

Some freshwater fish feed upon small creatures captured from the outside world, notably winged insects and grubs. Thus we see the trout snapping at mayflies. They devour them by sucking in a little water. Somethimes a trout leaps right out of the water to seize a fly in full flight. Other fish are still more artful. The archer fish lies in wait close to water flowers watching intently the grass and stalks bordering his domain. When he sees a fly perched on the end of a blade of grass he spits a mouthful of water at it. This unexpected shower knocks the insect into the water, where it is immediately devoured.

Sea fish feed in much the same way as those living in fresh water. But there exists in the oceans an infinite variety of species of fish possessing special hunting techniques or particular ways of feeding. Certain rays, for example, and even sea bream, live mainly on shellfish. Their mouths have very thick lips and extremely powerful teeth, veritable blacksmith's tongs, capable of cracking the shells of limpets, oysters, cockles or clams.

Flat fish that live on the sea bed dig in the sand to extract worms and the baby shellfish of which they are very fond.

Most of the big carnivorous sea fish such as shark, tunny and swordfish hunt their prey at speed. They follow immense shoals of little fish, sardines, herrings, mullet, and from time to time hurtle into the shoal with jaws agape. By some extraordinary sense-organ they can tell from afar the existence of the slightest morsel capable of satisfying a rough and ready stomach.


Pike
Angler Fish
Red Bream
Archer Fish
Roach
Trout
Gudgeon
Plaice
Blue marlin

Finally, in the depths of the sea live fish which possess strange shapes. The angler fish, for example, possesses at the end of its nose a sort of line which might be compared with a fishing line. This ends in a sort of bud that looks like a worm or a small edible creature, and the angler fish uses it to attract its prey. When the unfortunate victim approaches, the angler fish's wide mouth opens and sucks it in.

How fish breed

Nearly all fish reproduce themselves by laying eggs. When these are hatched they give birth to young fish called fry. Some fish, however are an exception to this general rule because their young are born alive. Among them are sharks and certain special kinds of rays.

Having once laid their eggs, the fish no longer give any care to them, except in the curious cases which we will see below. They leave the rest to Nature. Large numbers of eggs abandoned in this way are destroyed by all kinds of enemies, insects, birds, fish. But with great foresight Nature, to compensate for these losses, arranges that fishes should lay an enormous quantity of eggs: more than 9 million by the cod, for example, and more than 300,000 by the carp in one laying per year.

There are three kinds of fishes, eggs. First of all, sticky eggs. These have the property of attaching themselves to the first thing which they touch after having been laid. On the opposite page is shown a bream laying sticky eggs that attach themselves to plants. Secondly, there are those eggs which just sink to the bottom when laid, such as those of the trout and salmon. Such eggs would tend to be moved along by the current or flow of a stream, but the parents hollow out a shallow trough in the bed of the stream, deposit the eggs, and then beat a covering of sand or gravel over them to keep them in position and to hide them from marauders.

Finally, there are floating eggs which have the property of remaining poised in mid-water without being carried away or rising to the surface. The cod is one example of many sea fish whose eggs are deposited in this manner.

We have said that fishes do not bother themselves with either their eggs or their small fry. Certain species, however, possess a maternal instinct, or rather a paternal one, for it is always the male fish who take care of the progeny. The stickleback, for example, builds a nest. The male does all the work and then invites a female to lay her eggs in it. He then sheds his milt on the eggs to fertilize them, after which he mounts guard to protect first the eggs and then the fry until they are big enough to fend for themselves.

The black bass makes a much rougher nest; a kind of hole at the bottom of the stream. When the female has laid her eggs the male stations himself outside the nest, mounting guard to discourage robbers. With his tail he stirs up the water over the eggs, an essential operation to ensure successful hatching.

A strange-looking fish, the sea-horse, has a pouch on its stomach similar to that of a kangaroo. The female lays her eggs in the male's pouch and the male then shelters them until they hatch.

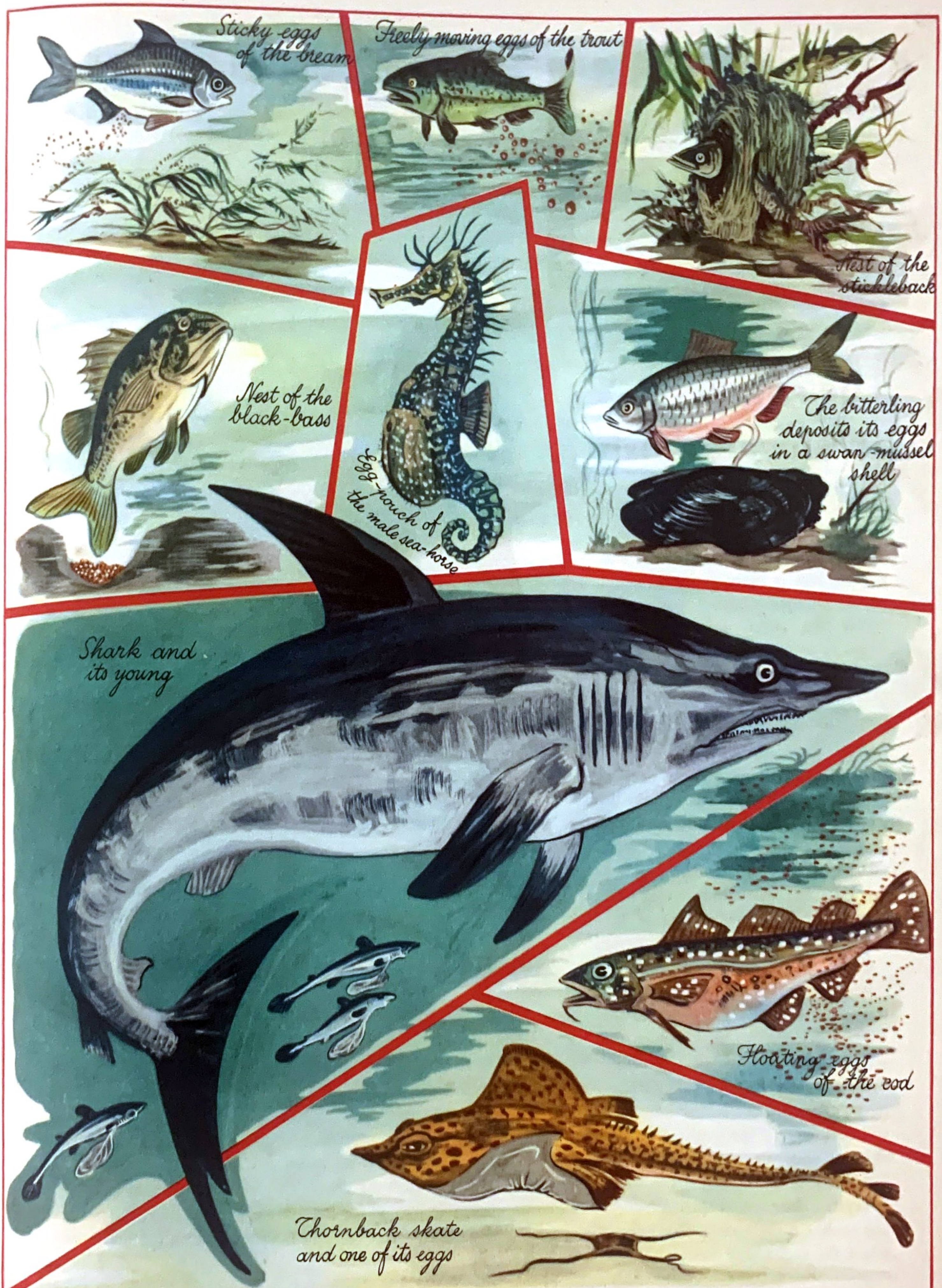
The bitterling, a small freshwater fish, lays its eggs in the shell of a certain kind of mussel. The female poises herself above the mussel and deposits her eggs into an aperture which the mussel uses for the ejection of waste water. The male, waiting close by, ejects its milt near to the mussel's breathing holes through which the milt is drawn into the mussel where it fertilizes the eggs laid there by the female.

Securely protected within the mussel, the eggs hatch out and eventually the young fish make their way out from the mussel through its gills.

Some fish, such as a species of ray, lay small numbers of eggs of curious appearance. Thus we can see on the opposite page an egg laid by the thornback ray. Whilst most eggs laid by fishes are transparent and fragile, this egg is opaque and protected by a kind of leathery material.

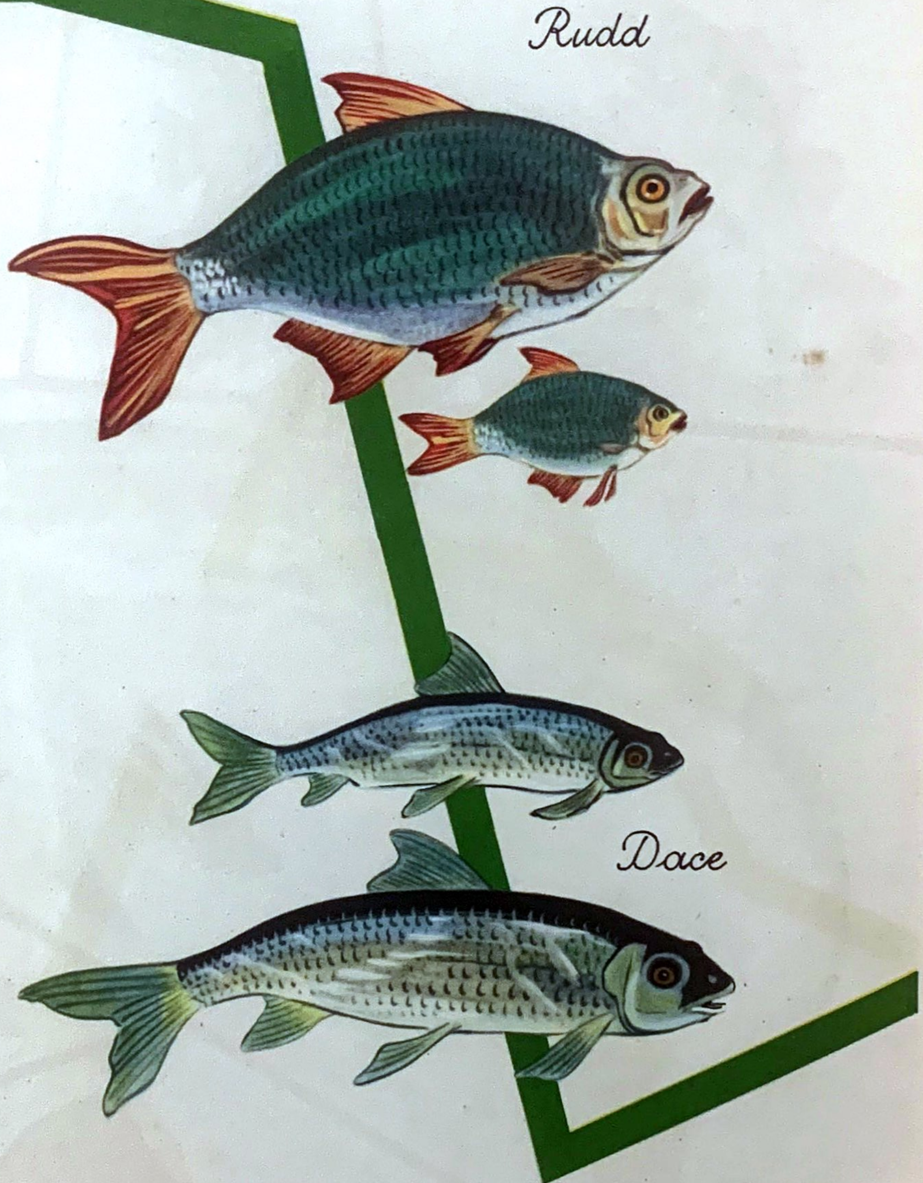
Whether born from an egg or born alive, young fish rarely resemble the parents. They commence life in what is called a larval stage during which nearly all species have a kind of pouch hanging from their stomachs, which contains sufficient food to sustain them for a while at the beginning of their existence.

Eventually this pouch shrinks and disappears. This yolk sac, as it is called, can be seen on young sharks in the illustration.


Sticky eggs of the bream
Freely moving eggs of the trout
Nest of the stickleback
Nest of the black-bass
Egg-pouch of the male sea-horse
The bitterling deposits its eggs in a swan-mussel shell
Shark and its young
Floating eggs of the cod
Thornback skate and one of its eggs

FRESHWATER SPECIES

Here are four species of freshwater fish, whose existence is comparable to that of sheep. Just as sheep live in a meadow on the land, rudd, roach, dace and bream live amid the water plants—the pasture of the river. They are nervous and timid, ever fearing the predatory attacks made on them by pike and perch.



The smaller freshwater fish

The RUDD is an attractive fish that has crimson fins and scales of a greenish hue. It lives in rivers and streams but is more generally found in fairly shallow lakes and meres where the water quickly becomes warm in summer. It is a fish which tends to cruise around, usually near the surface, feeding upon plant and insect life.

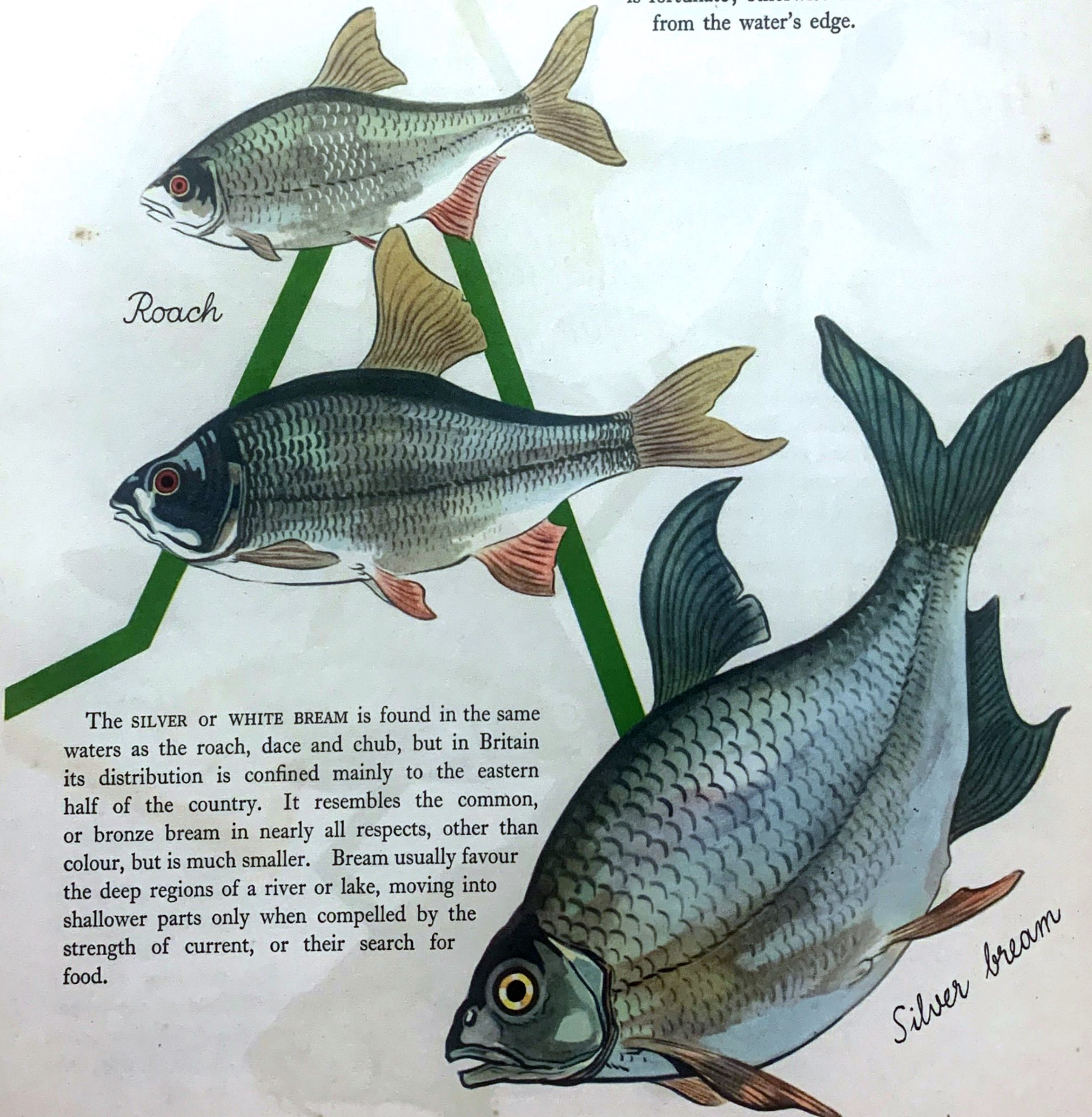
The DACE is a handsome fish, as bright and lively as the streams in which it lives. Its silvery scales create a reflection that is not unlike mother-of-pearl. Although a member of the Carp family, it is very rarely found in slow-moving or still waters.

Dace feed mainly upon microscopic algae and small aquatic insects; in the summer it is very partial to the winged insects that settle upon the surface, and it is often caught by fly-fishermen. As with all surface-feeding fish the dace is very timid and will dart away if the angler gives the slightest indication of his presence. Especially is this so when the water is crystal clear, or if there are not any bushes at the water's edge behind which the angler may conceal himself.

Dace are often mistakenly identified as chub, but the latter has a much sturdier body than the dace. The rear underside, or anal, fin provides another means of distinguishing between them. That of the dace has a concave edge, whilst the corresponding fin of the chub tends to be convex.

ROACH tend to roam about in small shoals, and are the most popular quarry of British coarse fishermen. The roach is a very handsome well-proportioned fish that has light-red fins, and silvery scales which have a slight tinge of blue. It is found in nearly all British rivers, streams, lakes, ponds and canals, but for some strange reason is not known in Ireland.

The principal food of the roach is derived from microscopic forms of plant and animal life. In angling it is most frequently captured with maggot or bread baits but there are times when worms, hempseed, wheat and cheese may prove more effective. It almost invariably noses around the baited hook most cautiously, causing hardly any disturbance to the float or the rod-tip, before it will make up its mind to swallow the bait. The angler needs to keep his presence well concealed from the fish, usually by casting his bait several feet out from the bank. If there are waterside shrubs or bushes that help to screen him from the fish, the angler is fortunate; otherwise he must sit well back from the water's edge.

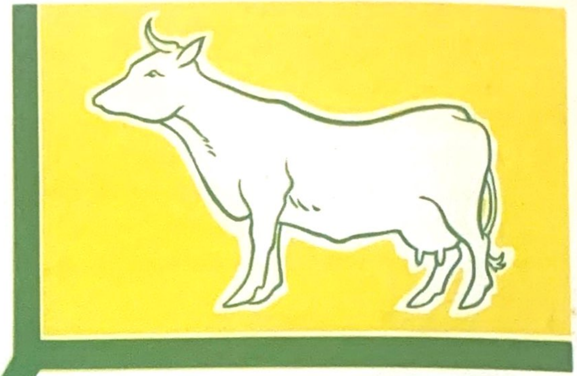


Roach

Silver bream

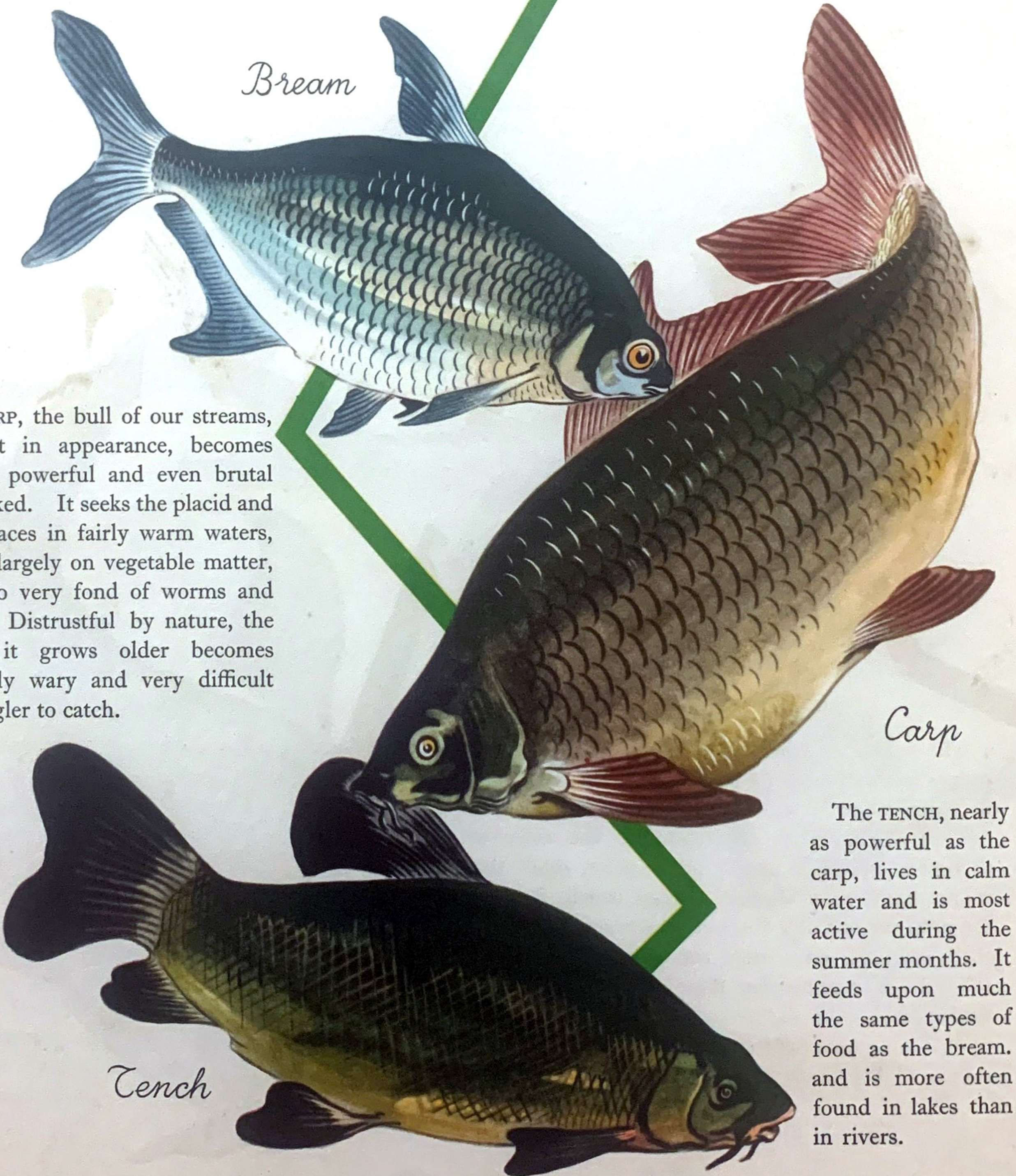
The SILVER OR WHITE BREAM is found in the same waters as the roach, dace and chub, but in Britain its distribution is confined mainly to the eastern half of the country. It resembles the common, or bronze bream in nearly all respects, other than colour, but is much smaller. Bream usually favour the deep regions of a river or lake, moving into shallower parts only when compelled by the strength of current, or their search for food.

Large freshwater dwellers



On this page are illustrations of three large freshwater fish. They tend to congregate in shoals at the bottom of the stream, in much the same way that cattle herd together in the fields.

The COMMON BREAM, with its back the colour of mud and with bronze-coloured sides, is flat and deep in body. It forages around on the river bottom, exploring the mud in order to dislodge plant life, seeds, larvae, maggots, or worms. It is very fond of breadpaste, worms and maggot baits.

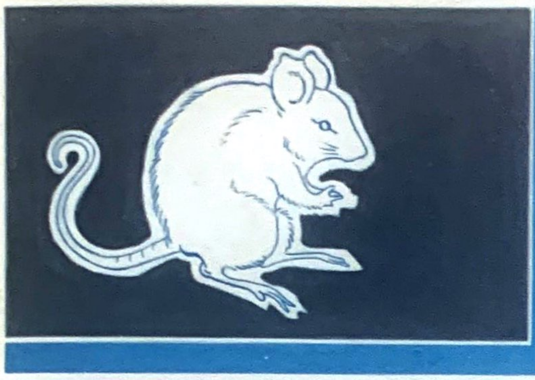


The CARP, the bull of our streams, nonchalant in appearance, becomes tenacious, powerful and even brutal when hooked. It seeks the placid and muddy places in fairly warm waters, and lives largely on vegetable matter, but is also very fond of worms and maggots. Distrustful by nature, the carp as it grows older becomes increasingly wary and very difficult for the angler to catch.

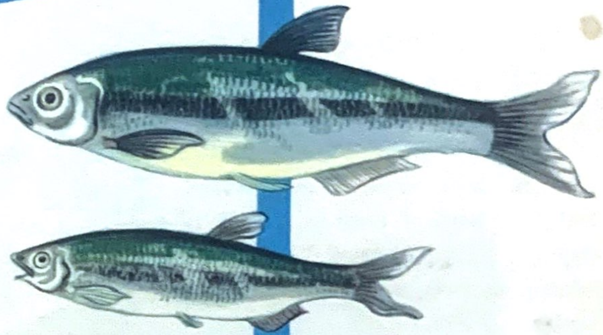
The TENCH, nearly as powerful as the carp, lives in calm water and is most active during the summer months. It feeds upon much the same types of food as the bream. and is more often found in lakes than in rivers.

Freshwater midgets

The dwarf denizens of the river are comparable to little mice. They are agile, alert, always on the move, rushing hither and thither in their search for tiny morsels of food.

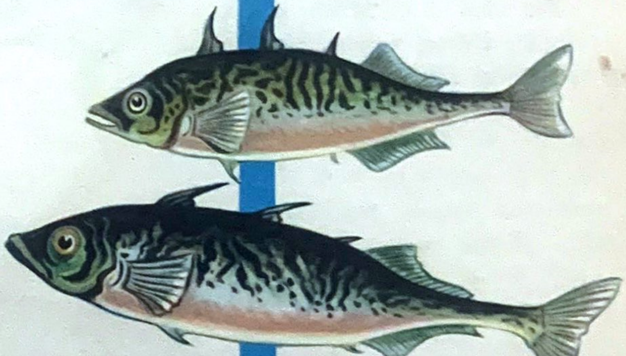


The BLEAK. The merest trifles attract its attention, a bubble floating on the surface, a little fly, the flour that powders the water near a mill. The bleak comes and goes in the stream, disputing with its fellows possession of the maggot, the microscopic morsel of fat or the piece of bread that the angler fixes to his hook.



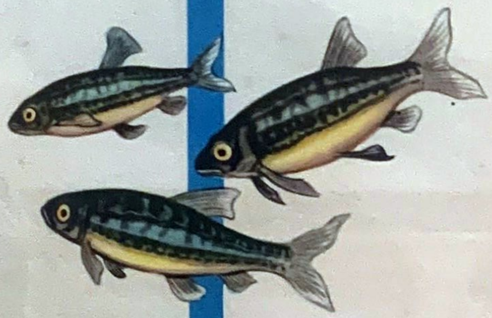
Bleak

The STICKLEBACK, secure in the protection of its spines, displays an unusual audacity which is allied to an insatiable appetite. It arouses no interest for the fisherman, whom it annoys by sucking at his bait. The stickleback in its mating dress cuts a fine figure in the aquarium, where its habits are interesting to observe. It is easily captured, in streams and brooks, with a home-made net or a simple slender line with a piece of earthworm tied to it. The stickleback flings itself on the bait and devours it so greedily that it cannot spit it out before it is whisked from the water.



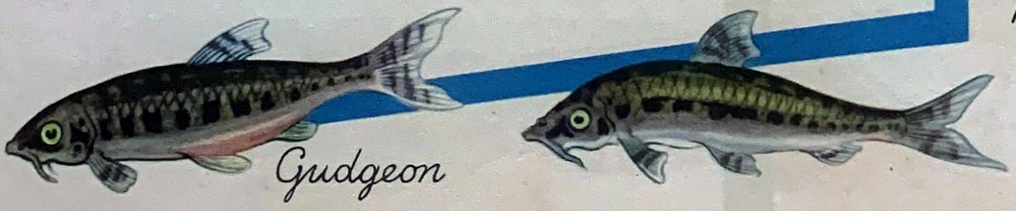
Stickleback

The MINNOW likes to move about in fast-running water. It lives with the trout which frequently makes a meal of the minnows. The minnows get their revenge by snapping up the trout eggs from the gravel in which they are laid. The minnow is as fearless as it is greedy. If you paddle in the water it will have the nerve to come and nibble your toes. Though it much prefers maggots and tiny worms.



Minnow

The GUDGEON lives at the bottom of the river. It uses its sensitive barbules among the gravel and sand of rivers and clear streams in its unwearying quest for larvae, little worms and grubs.



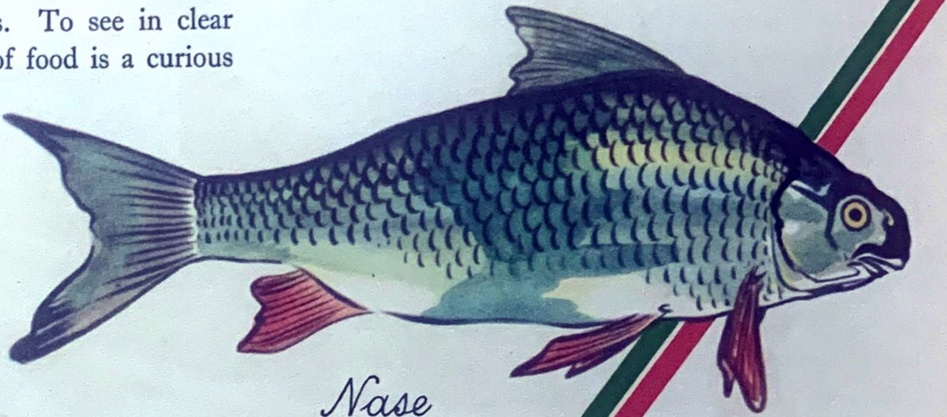
Gudgeon

Greedy freshwater fish

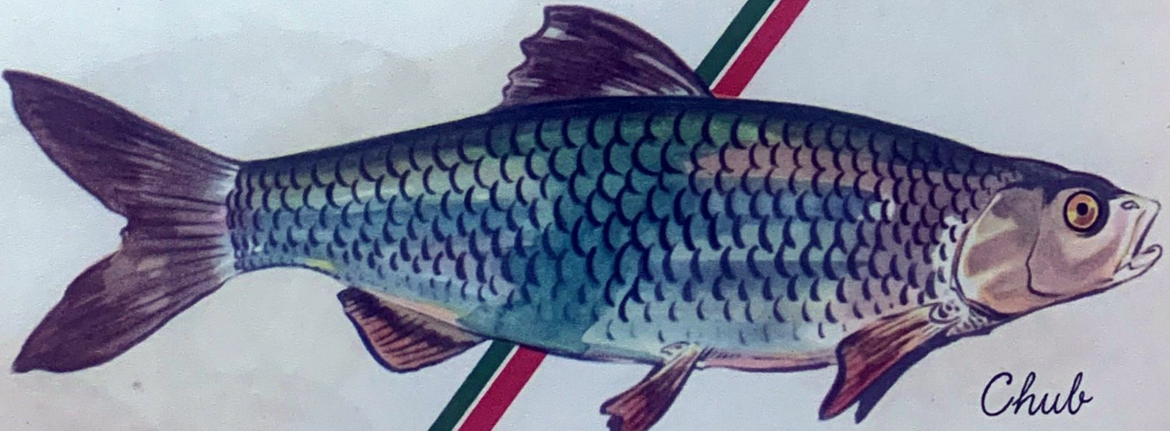
Here are the river hogs. These are the ones that eat everything, everywhere, all the time, the freshwater scavengers. The omnivorous fishes are considered harmful, because they eat the small young fish of other species.

The NASE, found mainly in Central and Southern Europe, has a prominent snout beneath which the lower lip of its mouth recedes. It is a wanderer which, with its innumerable brothers and sisters, lives in large streams and rivers. To see in clear water a shoal of nase in search of food is a curious sight; hundreds of light-beams are reflected from their scales. When they have finished eating, the shoal moves on up or down the river. These fish appear and disappear with equal suddenness. They feed on plant life, wheat, bread, larvae, worms and the young of other fishes.

The CHUB is to be found in streams and rivers and even a few small brooks favoured by the trout. Anything that can be eaten is acceptable to the chub: seeds, grain, insects, flies, beetles. It also pursues and devours young fish. It might be thought that a fish so eager to feed would be easy to catch. This is not so, for though the chub has a good appetite it is extremely cautious.

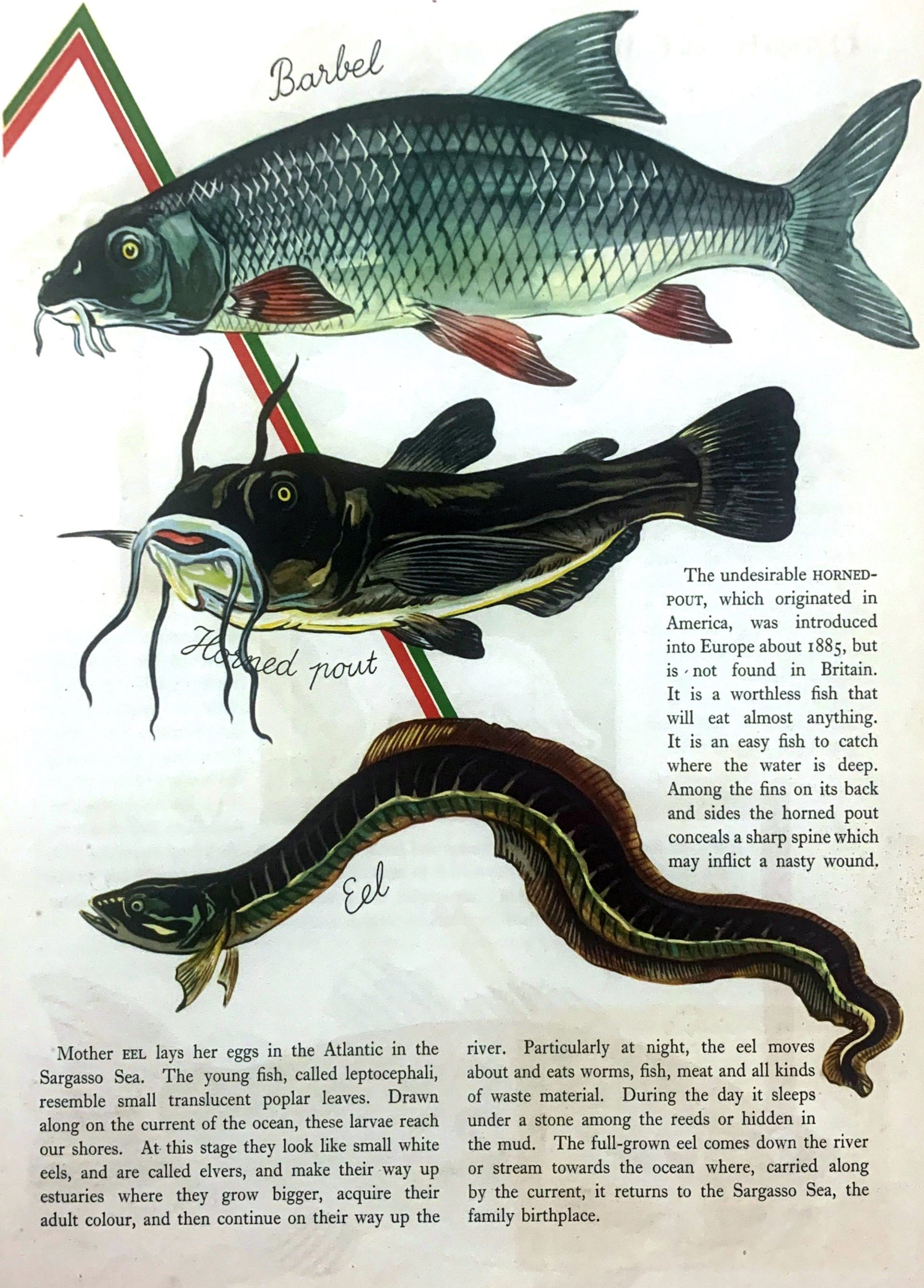


Nase



Chub

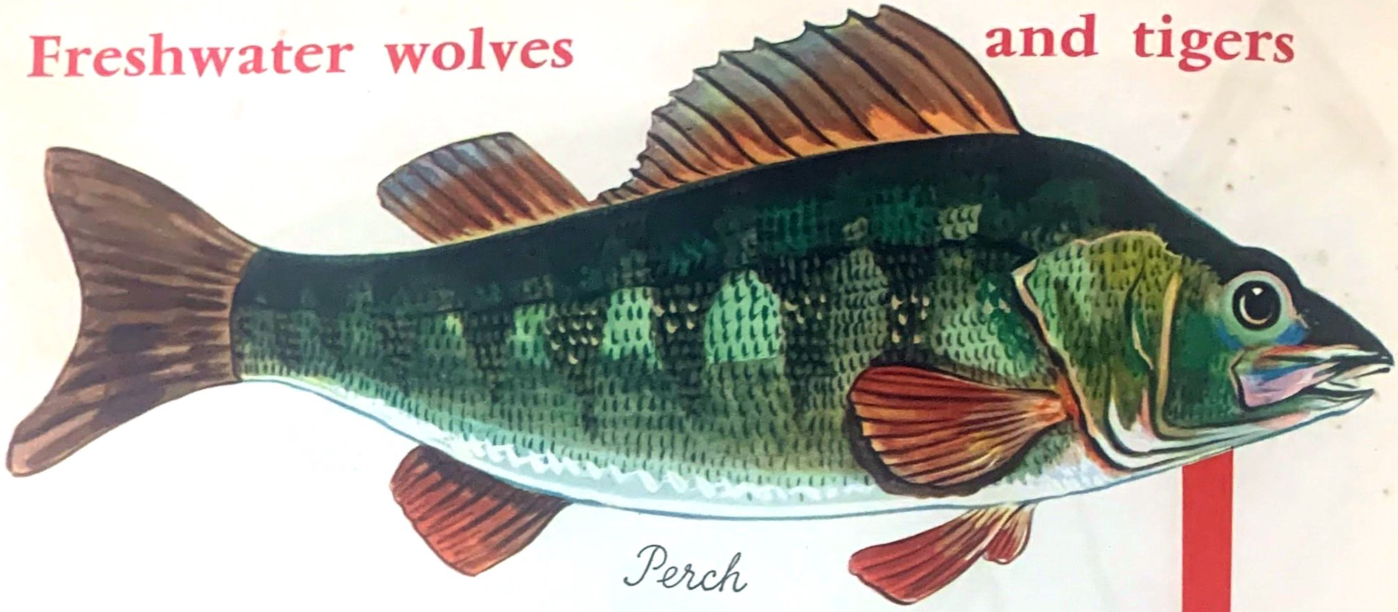
The BARBEL, with its gold and green back, yellow sides and magnificent "moustache", lives in big rivers and cold water streams, spends its time sucking algae or ferreting in the gravel. Its sensitive barbules, enable it to locate its food; seeds or tender shoots, small shellfish, larvae, insects grasshoppers or crickets, and young fish. It is also very partial to cheese bait. Its vigorous response when hooked rejoices the heart of the fisherman who feels it tugging on his line.



The undesirable HORNED-POUT, which originated in America, was introduced into Europe about 1885, but is not found in Britain. It is a worthless fish that will eat almost anything. It is an easy fish to catch where the water is deep. Among the fins on its back and sides the horned pout conceals a sharp spine which may inflict a nasty wound.

Mother EEL lays her eggs in the Atlantic in the Sargasso Sea. The young fish, called leptocephali, resemble small translucent poplar leaves. Drawn along on the current of the ocean, these larvae reach our shores. At this stage they look like small white eels, and are called elvers, and make their way up estuaries where they grow bigger, acquire their adult colour, and then continue on their way up the river. Particularly at night, the eel moves about and eats worms, fish, meat and all kinds of waste material. During the day it sleeps under a stone among the reeds or hidden in the mud. The full-grown eel comes down the river or stream towards the ocean where, carried along by the current, it returns to the Sargasso Sea, the family birthplace.

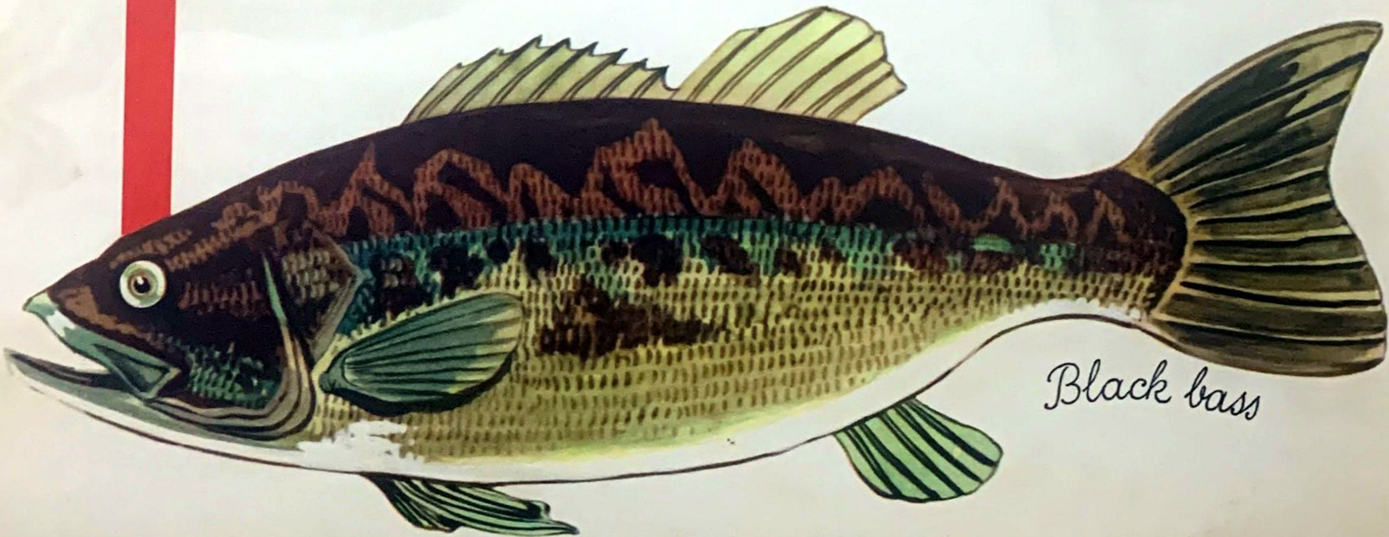
Freshwater wolves and tigers



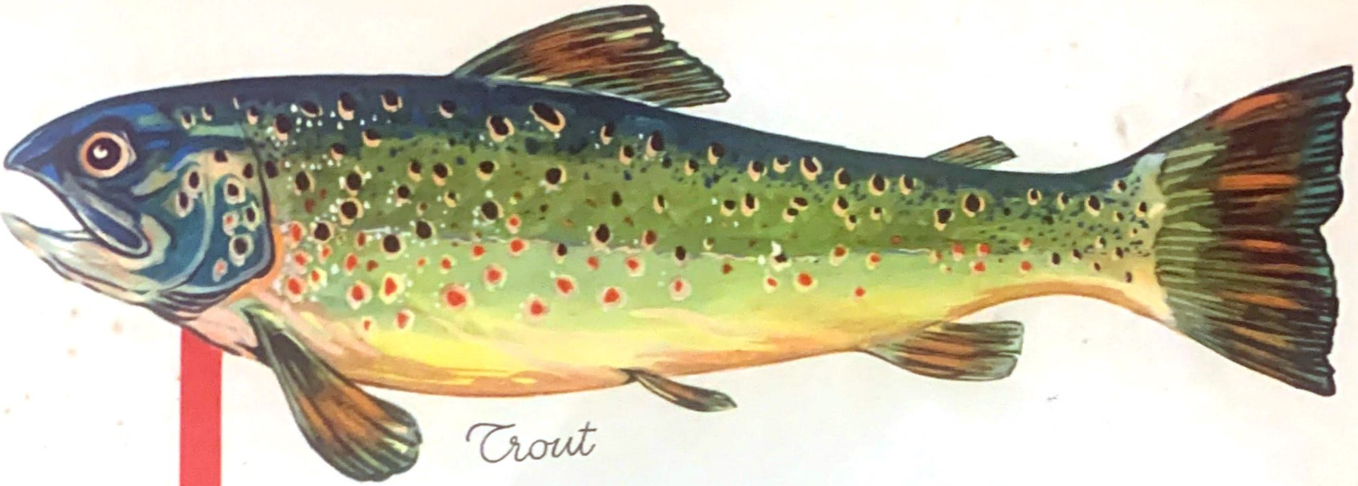
Perch

The PERCH with its striped sides and rust-coloured fins is not, like the pike, a great carnivorous fish that lives alone. We can compare it to the wolf, for like this animal it lives as one of a pack. It hunts the small fry and young fish. It is very fond of worms and larvae of all kinds. Always hungry, quite bold, the perch is easy to catch. A perch that weighs more than a pound is rated a good specimen. Generally speaking perch are more plentiful in the waters of lakes and gravel-pits than in rivers.

The BLACK BASS is a native of the American continent. It is also called the Canadian perch. Its introduction into Europe took place during the first half of the century but it has not been introduced into British waters. It is to be found in a number of streams and pools. In habits the black bass resembles both perch and trout. It comes to the surface to snap up flies and insects that have fallen on the water. It pursues young fish of other species, and gobbles up the unsuspecting frog taking its bath. At the bottom of the river it attacks crayfish, and is as ruthless as it is hungry.



Black bass

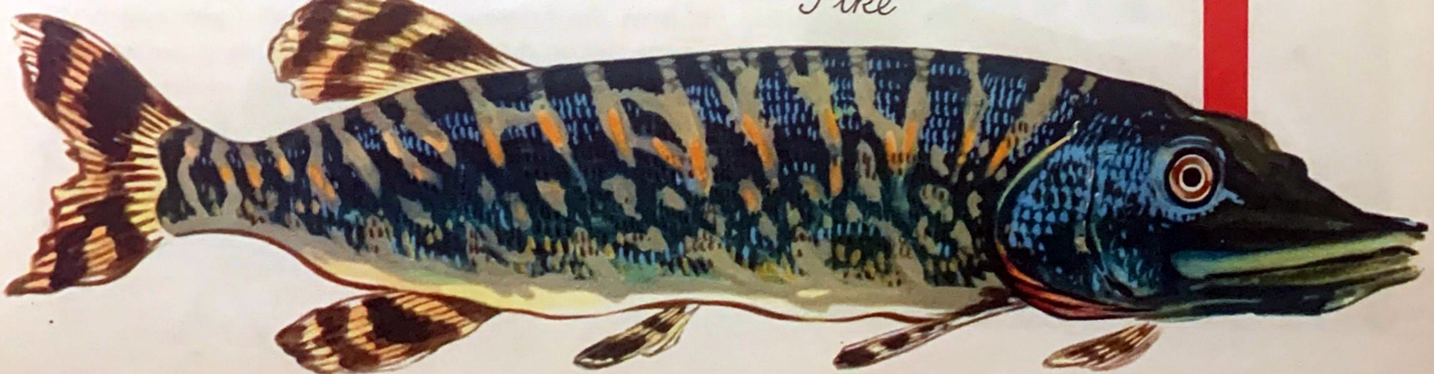


Trout

The TROUT reigns in the pure, cold, and sparkling waters of mountain torrents, streams and lakes. It is a delicate and nervous fish, beautiful in its dress sprinkled with black and red spots. With keen eyesight, patience and cunning one can surprise the trout that rests motionless in the transparent waters. It waits, head-on to the current, for the insects moving about on the surface. The trout stalks the heedless minnow or the worm or larvae carried along by the current. Cruel, yet timid, the trout fears man, and as soon as it sees him or can make out his shadow, will dart off in the twinkling of an eye to hide under the bank. The trout's firm, vigorous body enables it to thrust its way upstream through fast-flowing currents. The trout-fishing season in Britain is mainly from 1st March to 30th September.

The PIKE has a crocodile-like head attached to a green body striped with yellow. In a head flecked with gold are two eyes that are cold and cruel. The jaws of the only true carnivore of our fresh waters open wide to reveal numbers of sharp teeth—a misfortune for any fish, frog, water rat, or even duck that falls victim to the pike. Patiently the pike lies motionless awaiting the approach of its prey. Then with lighting speed it launches itself at its victim, seizing it firmly in its jaws, and then devours it, always head first. The pike serves a useful purpose, for it helps to rid the water, streams and lakes of unhealthy fish, and prevent the numbers of small fish becoming too great. It is, in fact, a most enthusiastic fisherman.

Pike



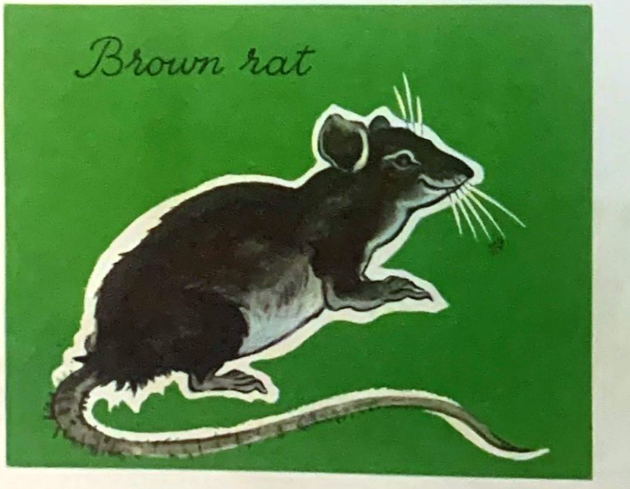
Waterside companions

The OTTER swims like a fish and walks as carefully as a cat. Here we see the otter emerging from its morning dip. This is a rare sight, for it is usually only at night-time that the otter leaves its hole to go fishing.

The otter knows every inch of its fishing grounds. According to the season of the year, its mood, or merely its appetite, the otter dives like a submarine, pursues roach and bream, of which it is very fond, and then crouches on a stone or the bank in order to devour them.

Occasionally it splashes around in the mud and plants its webbed feet on the back of a tench waiting there motionless, hoping to pass unnoticed. A fish between its teeth, the otter emerges from the water to eat it on the bank. Suspicious and very fastidious, the otter will never touch a fish which it has not killed itself.

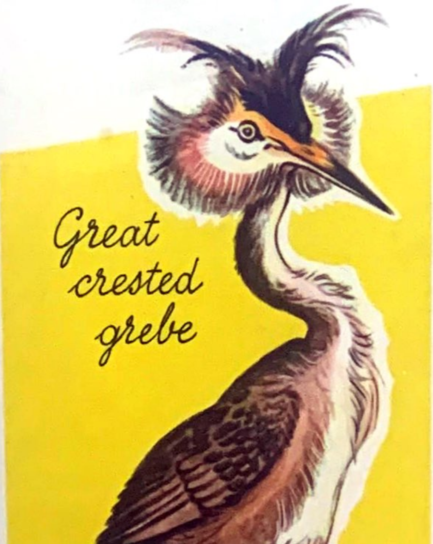
The creature is a little shortsighted but possesses an extraordinarily keen sense of smell. On land, the otter detects from afar the most cleverly concealed trap, for it bears a human scent. If the otter does eventually get into trouble, its curiosity and passion for cleanliness will be responsible. Even a white patch on the bank, such as a flat stone, piece of paper, or a plate will attract the otter. The otter approaches it instinctively as being a nice clean place in which to consume its meal of fish. Woe betide the otter if a trap, concealed in a good place under the water, closes on its paw or strange, cone-shaped tail.



The BROWN RAT is a large rodent. It likes fishermen who, when they have finished fishing and go on their way, leave delightful things behind them such as pieces of bread or potato. It comes to nibble all these when mist steals across the water at dusk. It is fond, too, of the fish that it is able to catch; but prefers to steal it from the keep-net which the fisherman may leave unattended in the water. It is amusing to see it swim, with its whiskers level with the surface of the water, or running under our feet dragging its shiny tail behind. Though not unduly troublesome to fishermen, it is a destructive rodent. To avoid encouraging its development the angler should not feed it too well. If it finds nothing to eat it will soon go away.

The KINGFISHER. All birds are pretty but the kingfisher is among the most beautiful with its back as blue as the sky and its front as red as the leaves of autumn. It flies through the air like an arrow just above the level of the water, uttering its war-cry: *cri - i - i - i*. It is a fisherman who attacks the fish with its beak. Perched on a branch, it first of all studies the water. Suddenly, with the shake of its wings, it hurls itself at the selected quarry like a dive-bomber. It rises from the water with the fish held firmly in its beak, and returns to its perch to swallow the catch greedily.

The HERON. On its long legs the biggest of our water birds parades along the water's edge. The heron is a patient angler who, with head crouched, surveys the surface of the water with seemingly indolent eyes. Perched on one leg it waits for its dinner to come by. This is unfortunate for any fish that comes within its range. The heron's neck stretches out and the sword-like beak moves forward at lightning speed. The fish is seized and swallowed in the twinkling of an eye. Fish is not on the menu every day. The heron must sometimes be content with insects and snails that are easy to pick up, frogs, or other creatures which can be extracted from the mud or seized in other ways. The heron is a very shy bird and is afraid of man, whose presence it can easily detect from afar.

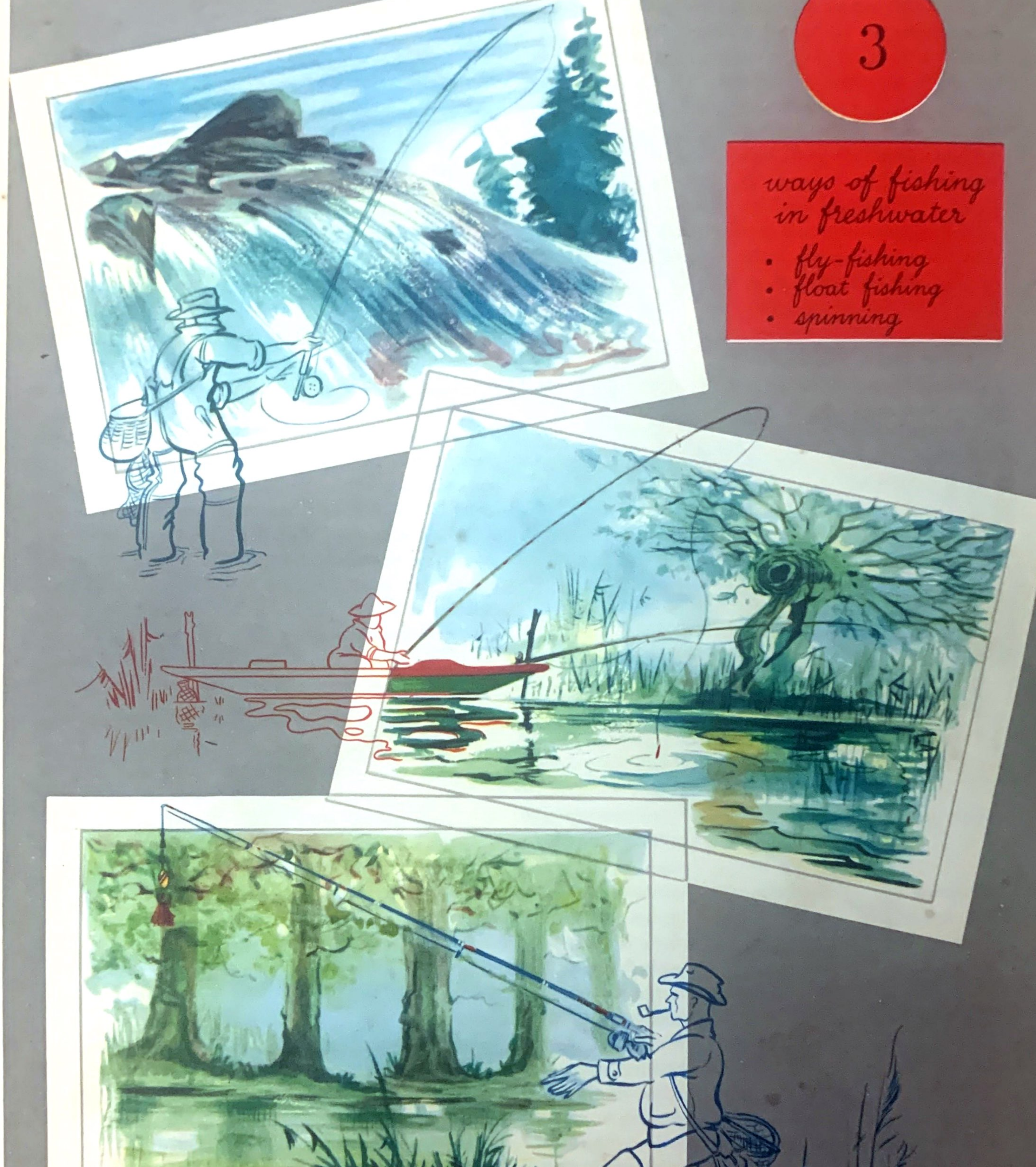


The GREAT CRESTED GREBE, with its silky front, disports in the water like a fish. The grebe swims and dives better than it flies. A clever sub-aqua fisher it can travel under water at great speed, using its feet which have curiously broadened toes. It fishes in order to eat, sometimes toying with its victim before consuming it. The grebe should not be killed; its amusing presence is often preferable to that of other less welcome water creatures.

3

ways of fishing in freshwater

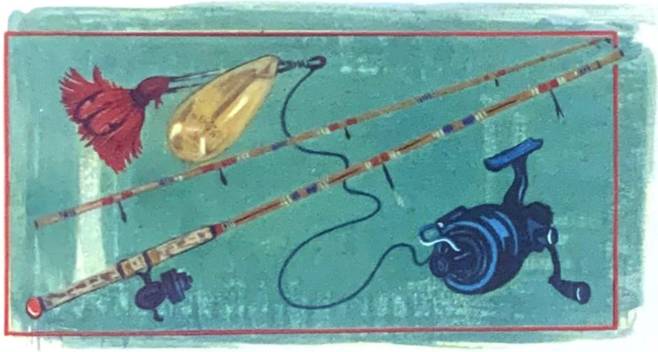
- *fly-fishing*
- *float fishing*
- *spinning*



Three methods of freshwater fishing

Bait fishing. The angler seated at the water's edge fishes with a floating line for all kinds of fish from roach to carp. This type of angler can be identified by the equipment he uses and the manner in which he fishes.

His equipment comprises a fairly long rod, reel, line, float, weights, and hook. The fisherman relies on the greed or hunger of the fish that will swallow the bait fixed to the hook. He sits by the water's edge and waits patiently until the fish come to his baited hook, not by chance but attracted by the groundbait which periodically he throws into the water. A well prepared bait attracts the attention of the fish by the succulent taste of its ingredients and is appetizing without satisfying.



Spinning. This type of angling catches pike, perch and trout with a light, short rod fitted with a reel of the fixed-spool type. The angler moves about constantly, casting the line far into the water and then reeling it in again. At the end of the line is fixed a special kind of artificial bait or lure. The best known of these are the spoon and the Devon minnow. These are metal devices to which hooks are attached. They look like live fish when pulled through the water. The casting angler does not wait for the fish by remaining in the same place. He seeks his quarry by roaming along the banks and casting his line into the water wherever he thinks the fish are likely to be found.

Fly fishing. The fly fisherman pursues the insect-eating fish. These are, in fast running streams, trout and grayling: in slow moving stretches of water, chub, dace, bleak and rudd. The equipment required consists of a thin flexible rod, and a free-running, drum-type reel. The latter holds a line made of special silk designed to enable the angler to cast an extremely lightweight artificial fly. Attached to the end of the silk line is a length of nylon line to which the artificial fly is attached. This imitation insect is a lure made of fragments of feathers tied on to a hook. Extremely light, the artificial fly floats on the surface of the water, its shape, silhouette and colour resembling that of a real insect. The fish, imaging that it is something good to eat, rises to the surface to snap at it and gets hooked.

It is in spring and summer that fly fishing is practised, seasons when swarms of insects abound. When a fish comes to eat a fly on the surface of the water it is said to rise to the fly. It is easy to see when a fish is rising to the bait for in capturing its prey, the fish ripples the surface of the water.

COARSE FISHING

Fish for the frying-pan: bleak, small roach, pumpkin-seed

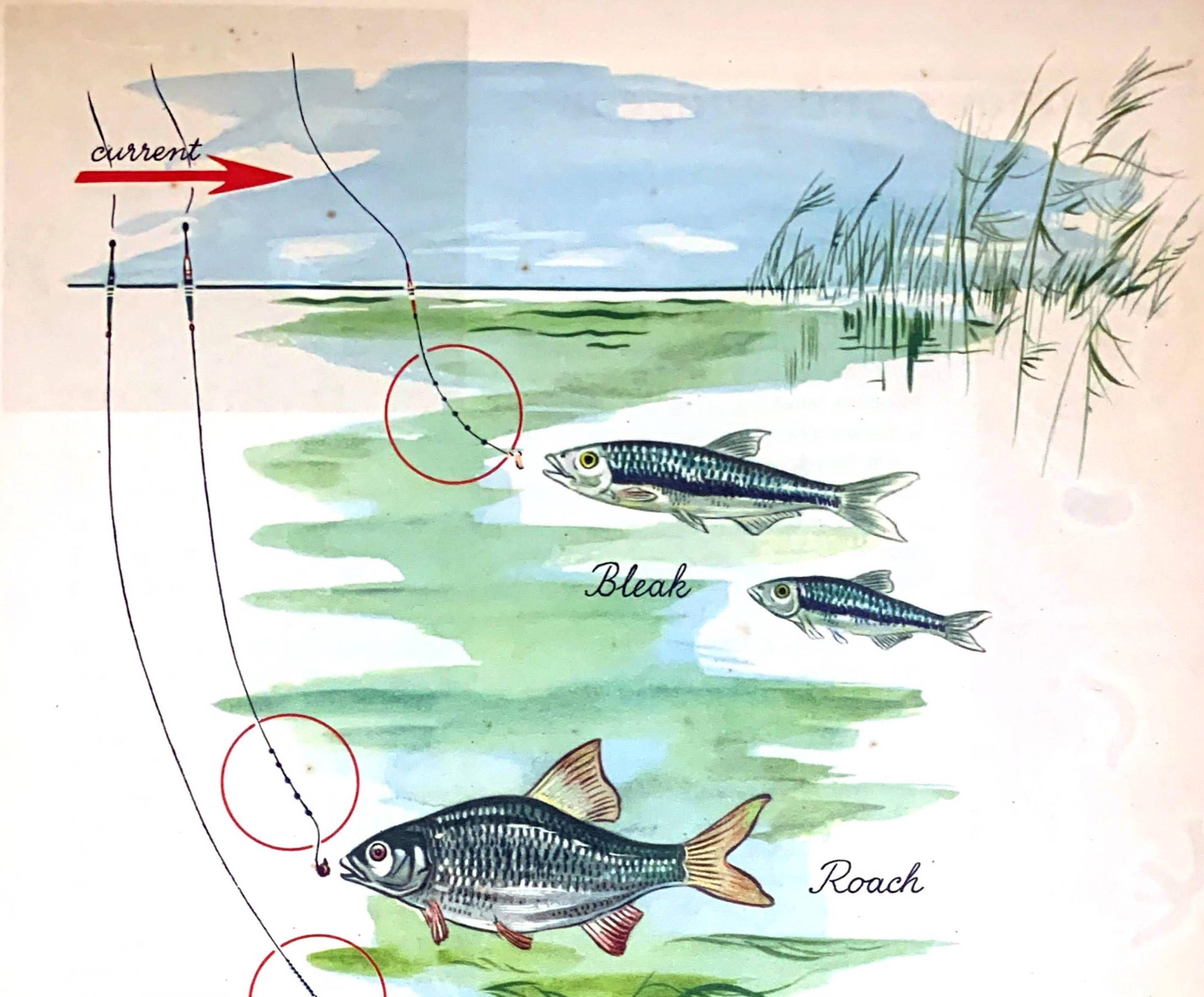
Enjoyable and easy fishing for the small fish found in streams does not require complicated equipment and provides good training.

The BLEAK feeds at or near the surface, where preferably the current is strong. The line should be of very fine nylon, linked to a size 18 or 20 hook. The float should be light and balanced by a few tiny split-shot weights arranged as follows: the first about four inches above the hook and the others, at intervals of one inch above it. The bleak is attracted by sprinkling the water with pieces of soaked bread-and-bran mixture. It suffices to throw in every five minutes a piece of the mixture as large as a nut. To the hook is fixed a maggot or piece of worm. Once the line touches the water we let it go downstream with the current, checking it slightly. The bite is rapid. Immediately the float sinks, strike sharply for the bleak swallows and then spits out the hook fairly quickly. Sometimes the float trembles slightly or simply stops when the fish takes the bait.

The SMALL ROACH is an unwise fish which, particularly in summer, bites sharply on the line. It prefers those parts of the stream where there is very little current. It can be fished for with the same line and tackle as for the bleak. However, a sprinkling of whatever bait is to be used on the hook should be added to the groundbait. The best bait is a maggot, bread-flake or small worm. Boiled wheat and hemp-seed, too, are most effective in some waters. The float is arranged in such a way that the hook is suspended in mid-water. The small roach's bite is characteristic. The float dips slightly once or twice, then goes under. That is the time to strike the hook home.

The PUMPKIN-SEED is to be found in certain European streams and pools, but not in Britain. It is a native of North America, and was introduced into central Europe at the end of the 19th century. A voracious little creature, it flings itself on anything than can be eaten: maggots, worms, or small pieces of lobworm. It is necessary to set the float so that the hook is close to the bottom.

At the top of the page are seen a 3-piece cane fishing rod, a centre-pin reel, a spool of nylon line, a hook packet, a float, and lead weights. Below, is a lead plummet for depth finding and a keep-net in which to retain captured fish.


current
Bleak
Roach
Pumpkin-seed

Minnows and gudgeon

The MINNOW. This little fish lives in fast flowing waters such as trout streams and is the ideal fish for the angling novice, as it is easy to catch. It seizes at a baited hook without any compunction whatever, as soon as the hook is within reach of its tiny mouth.

On the opposite page we see a minnow about to be caught on a line arranged for fishing in fast moving water. The line is weighted with small split-lead weights pinched on to thin nylon and finishing with a hook. It is not necessary to groundbait when fishing for minnows.

It suffices to throw the line into the middle of a shoal of fish. Immediately the minnows will move towards it and will contend with one another for what is on the hook, whether it is an ordinary maggot or a piece of worm. Soon the boldest of the minnows will hasten to swallow the tit-bit before another takes it from him. The float sinks and all that is necessary is to tighten and wind in the line.

The GUDGEON. Much more entertaining and more serious is gudgeon fishing. These fish, as we have already said, live on the bottom of the river. They prefer the sand and gravel over which a cool current flows. It is there that one must seek them. Fixed to the angler's thin nylon line is a small float balanced by a single lead weight consisting of a small sheet of lead clipped on to the line. At the end is fixed a N°. 18 hook. Before starting to fish, the depth of the water is checked with a plummet in order to adjust the float. It is essential that the bait should drag along the bottom.

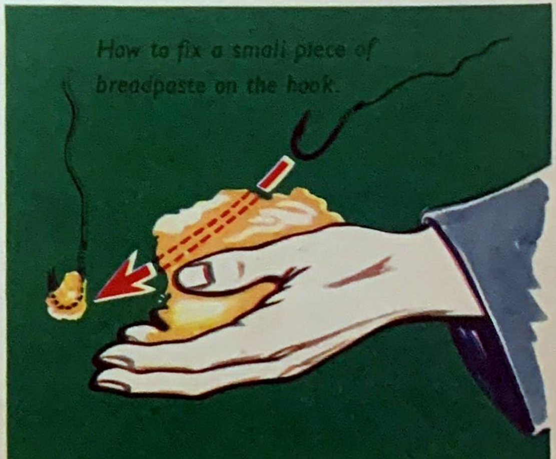
Anglers fish for gudgeon from the bank or, better still, by standing knee-deep in water. The latter type of fishing is very fruitful if one takes the precaution of continually disturbing the bottom of the stream with the feet. The clouded water which results encourages the gudgeon to investigate the disturbance.

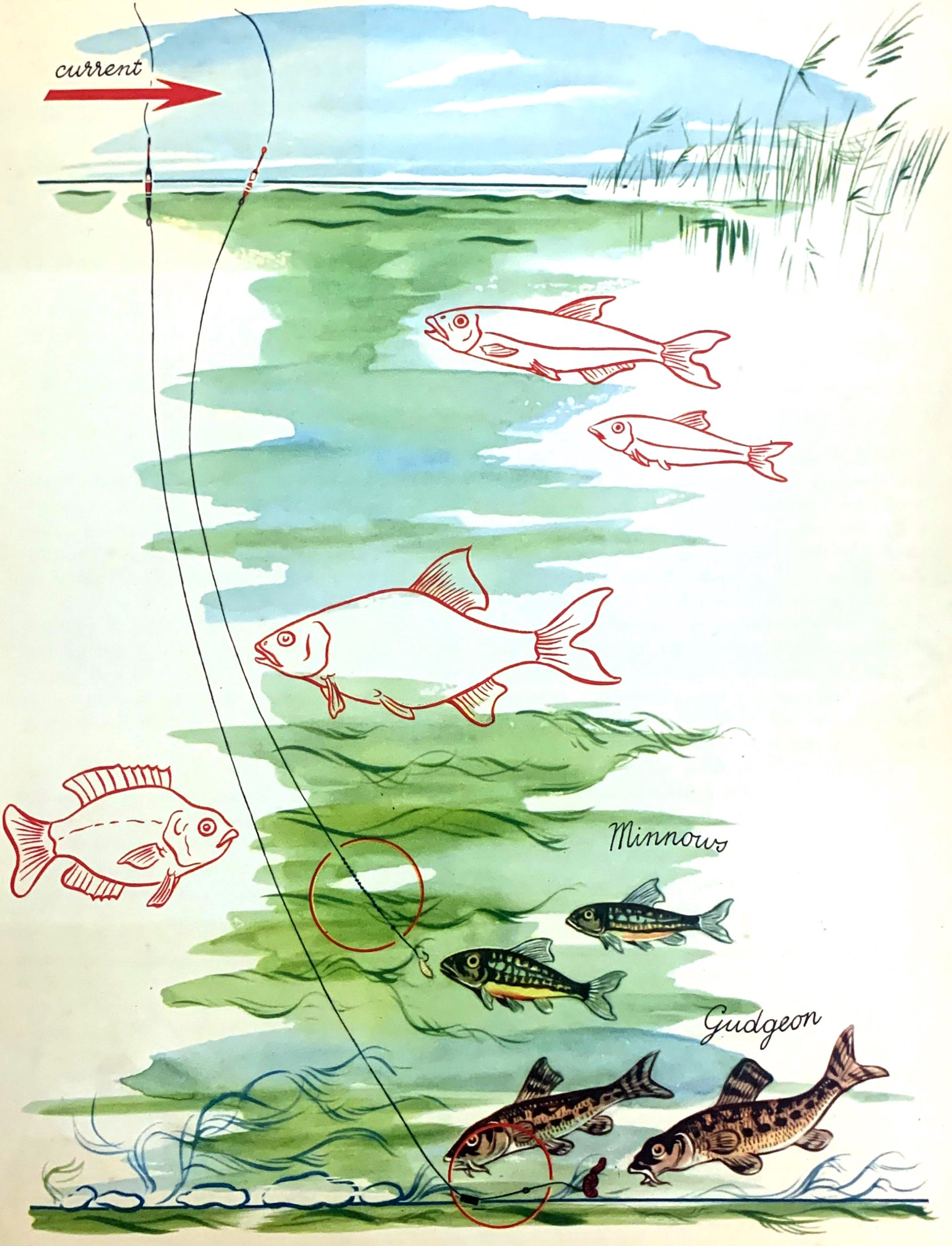
When fishing from the bank one attracts the fish by stirring up the bottom with a stick or rake a little above the spot where the line has been cast.

The gudgeon bites freely on maggots and small earthworms, and in consequence the float, which suddenly disappears. It suffices to haul in, in order to catch the fish.

When bites are infrequent it is an advantage to pull on the line to tantalize the gudgeon and encourage it to bite.

The best time to fish for gudgeon is when the weather is fine and the sun is shining. When fishing for gudgeon it frequently happens that small perch are attracted by the bait, and also ruffe, also known as pope, tiny fish of a species that is neither gudgeon nor perch, yet resembles both. The presence of many small-fry, such as these, is often a source of annoyance to the angler. But he must be patient. Eventually, their activity will arouse the interest of better-sized fish, which will seize at his baited hook.


How to fix a small piece of breadpaste on the hook.


current
Minnows
Gudgeon

Mid-water fishing for roach, bream and nase

Roach. The best fishing is to be done in summer. Before even the sun has risen the angler is in action for, from then until 9 or 10 o'clock in the morning, bites should be very frequent. After this they become less frequent, sometimes even ceasing completely, but resuming again towards dusk.

As good roach anglers we must operate where the fish are most likely to be found; in the deep currents of water, though where it does not flow too fast, between two banks of reeds, for example. We have sought to attract the fish as soon as we arrive or, even better, the night before, by throwing in a good supply of groundbait that will attract them to the spot in which we are going to fish.

The line, used with a rod 10 to 14 feet long, is thin nylon to which is attached a light quill float balanced by small lead split-shots that are attached to the line and spaced out at intervals of about an inch. The first weight is placed about eight inches above a size 14 or 16 hook. Before starting to fish it is necessary to plumb the depth in order to set the float so that the hook is an inch or so above the river bed.

What should be used to bait the hook? A maggot or small redworm is excellent at any time of the year. Boiled wheat is often a most effective bait, especially during August and September. Hempseed or bread tends to attract large numbers of small fish.

To be successful in roach fishing it is necessary to be as still and quiet as possible in order to conceal your presence from the fish. This is very important. Let us fix the bait to our hook and cast the line upstream.

As the bait sinks to the bottom, the float takes the weight of the split-shots and becomes erect, with its tip just above the surface, and is moved along by the current. Keep the line connecting rod and float just slack enough to allow the float to drift naturally with the current.

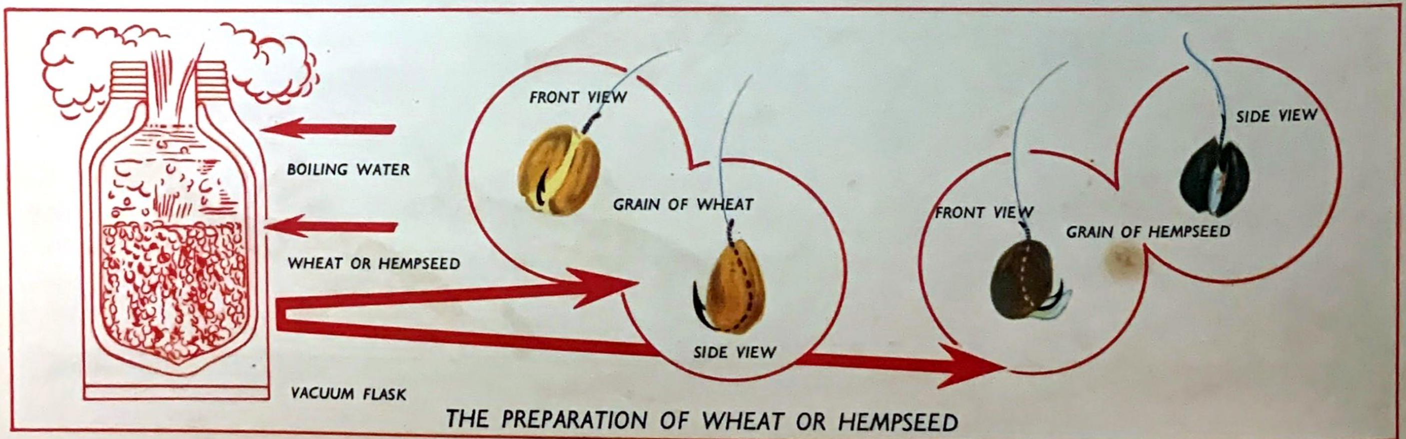
All goes well, the roach are there. In fact the float-tip seems to quiver slightly and then sinks as though it had been sucked at. A slight flick of the wrist and the first roach is hooked.

Roach are often very cunning when nibbling at a bait; sometimes they suck it most cautiously or merely make a delicate snatch at it, so that the float is hardly disturbed at all. At other times they will cause the float to jiggle about to such an extent that it becomes most difficult to judge the right moment at which to strike and hook the fish.

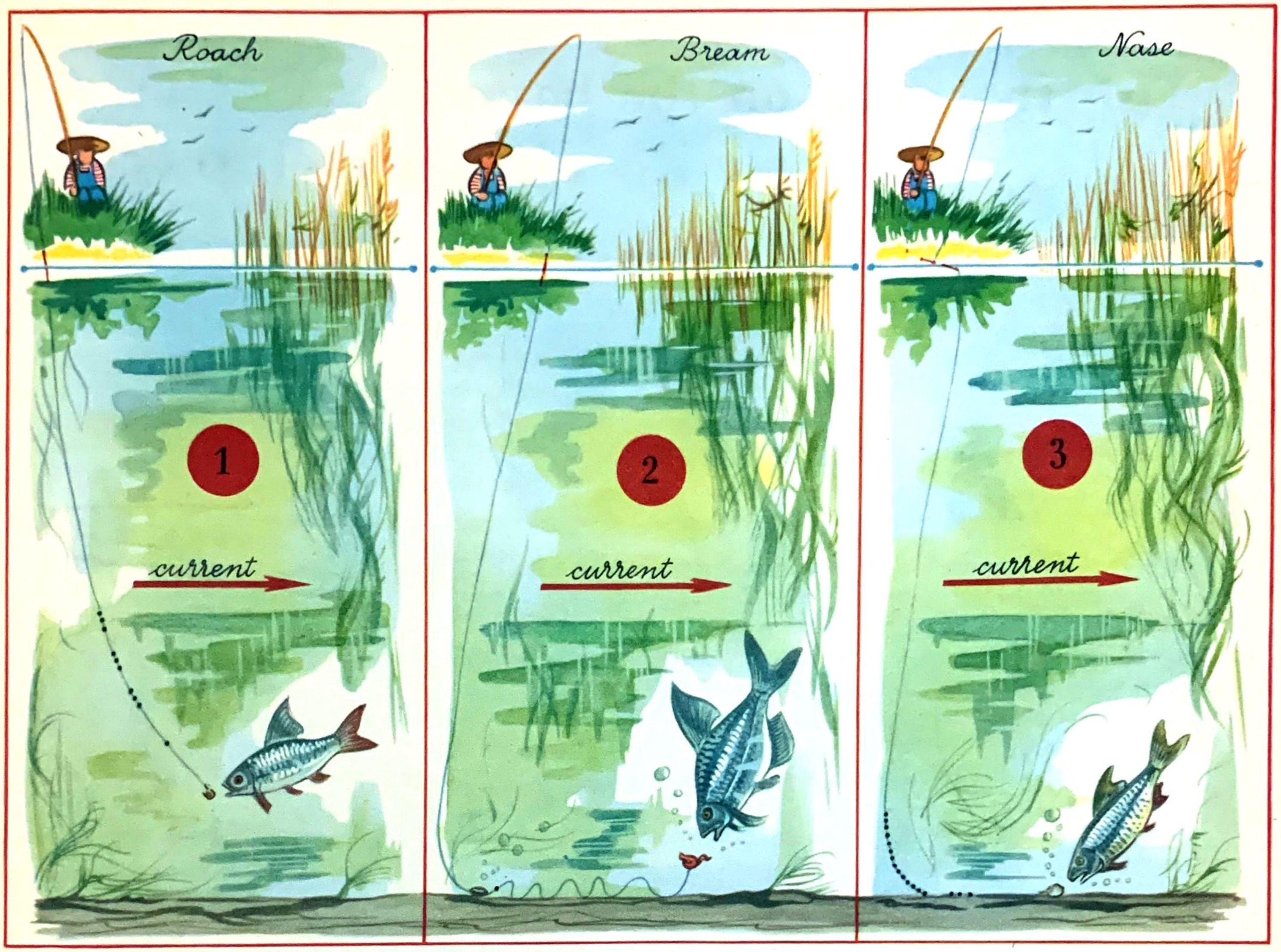
When roach fishing it is advisable to strike immediately the float signals the slightest indication of a nibble. This requires great concentration from the angler, especially when the surface of the water is ruffled by a breeze which similarly affects the motion of the float.

If the fish seem disinclined to feed, a sprinkling of groundbait thrown in periodically around the float will often entice them into action. At such times it is also worthwhile setting the baited hook at varying levels until we find the one at which the fish will feed.

Bream. No fish is more shy or timid than the bream. To succeed in catching one it is therefore essential that no noise should be made on the bank, and that footsteps or any vibration capable of being transmitted under water should be avoided. It is possible to take the bream in the same way as the roach and even on the same line.



THE PREPARATION OF WHEAT OR HEMPSEED



Bream are more often taken by a method called legering, in which the bait is held stationary on the river bed by a pierced spherical or torpedo-shaped lead through which the line can run freely. A small split-shot, pinched on to the line about a foot or so from the hook, acts as a " stop " for the lead. A size 10 or 12 hook is suitable when fishing for bream.

The bream can be caught with a small redworm, a grain of wheat, or a piece of potato, to all of which the bream is very partial. A suitable groundbait would be a mixture comprising ground hempseed, bread and crushed potato. The bream is a very hungry fish and can be attracted more readily than the roach. The bait is cast into the water, and when it is on the bottom the rod is laid on a rest so that the line is held taut. The tip of the rod twitches when the bait is taken; then is the moment to strike.

The NASE. Although this fish is found only in European waters, the following hints on how to fish for it may prove useful when you spend a holiday on the Continent. It inhabits the lower reaches of rivers in Central Europe.

To fish in a fast running stream or river we use a nylon line fitted with a fairly large float that is balanced by weights consisting of split-shots arranged as follows; the first group of three weights are set half-inch apart about a foot above the hook; the remainder of the split-shots are set out about six inches above them. Fix the float with particular care so that the lowest group of three weights drags on the bottom. In these conditions the float will not stay upright in the water but will lean over slightly, or even lie flat. Pulled by the current, the line descends slowly. In order that the hook shall not get tangled up, a clear patch of sand or gravel without any weed or other obstructions needs to be chosen. Bait the hook with a grain of wheat, a maggot or a caddis grub, and attract the fish by throwing in several pellets of ground hempseed and breadcrumbs covered with a little clay. At the slightest indication of a bite, strike immediately.

Fish that feed on the bottom: carp, barbel, tench

The CARP. Young carp, for which one fishes in the same manner as roach, are easily captured. But to take a large carp needs much preparation and care.

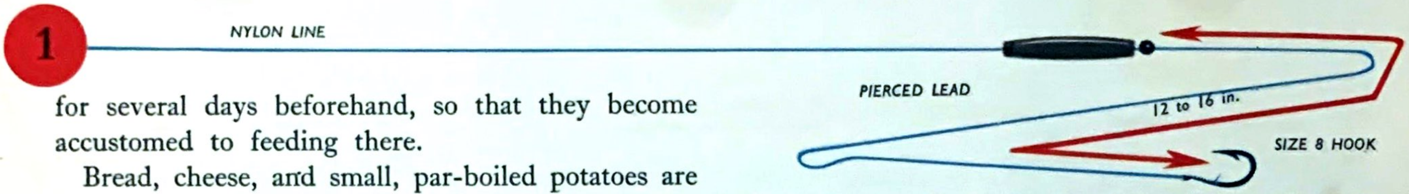
Carp favour peaceful surroundings in the deeper waters of quiet rivers and lakes, where there is little, if any, current. To be sure of attracting his quarry to the place where his baited hook will lay, the carp-fishing enthusiast will groundbait his swim regularly for several days beforehand, so that they become accustomed to feeding there.

Bread, cheese, and small, par-boiled potatoes are among the favoured baits for the wily carp. The tackle consists of a strong, resilient, two-piece rod, 9 or 10 feet in length, a fixed-spool reel with an adjustable clutch, and nylon line of a strength suited to the size of fish anticipated from the water concerned.

Having reached the waterside on the appointed day, the angler makes up a ball of clay well mixed with groundbait, and at the same time conceals the baited hook in it. He casts out the bait and line, sets his rod in a rest, and waits quietly and patiently for the fish to bite.

When the fish start grubbing around on the bottom they break open and feed upon the ball of groundbait and one of them eventually seizes upon the piece of bait which conceals a hook. The angler flicks his rod to strike the hook-point well into the fish's mouth.

Immediately it feels the tug from a hook, the carp is off like a flash. If it is of any worthwhile size its struggles to escape put a great strain on both rod and line. The angler must therefore play it with great care before he can draw it into the bank for final capture.



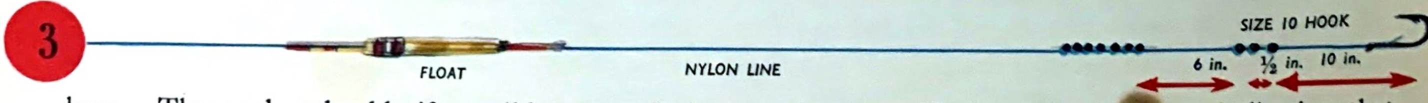
The BARBEL. Barbel are found mostly in deep fast-flowing waters but relax in peaceful, shady spots where the thrust of the current is less pronounced. Before starting to fish for them the angler throws in clay balls of groundbait about the size of an orange. These contain a mixture of cheese, boiled wheat, bread, maggots and chopped worms to whet the barbel's appetite.

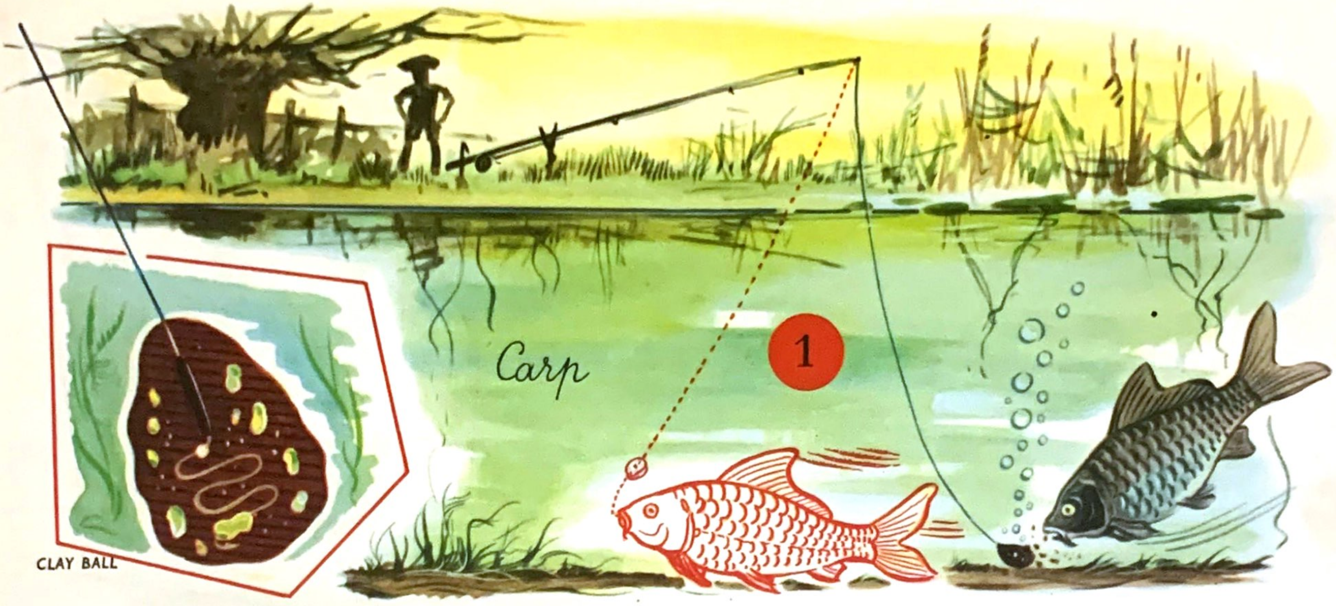
Legering is the usual method of fishing for barbel, the pierced lead being stopped by a split-shot pinched on to the line about 18 inches from a Nº. 8 or Nº. 10 hook. Lobworm, a knob of soft cheese or a bunch of maggots are the most effective hook baits.

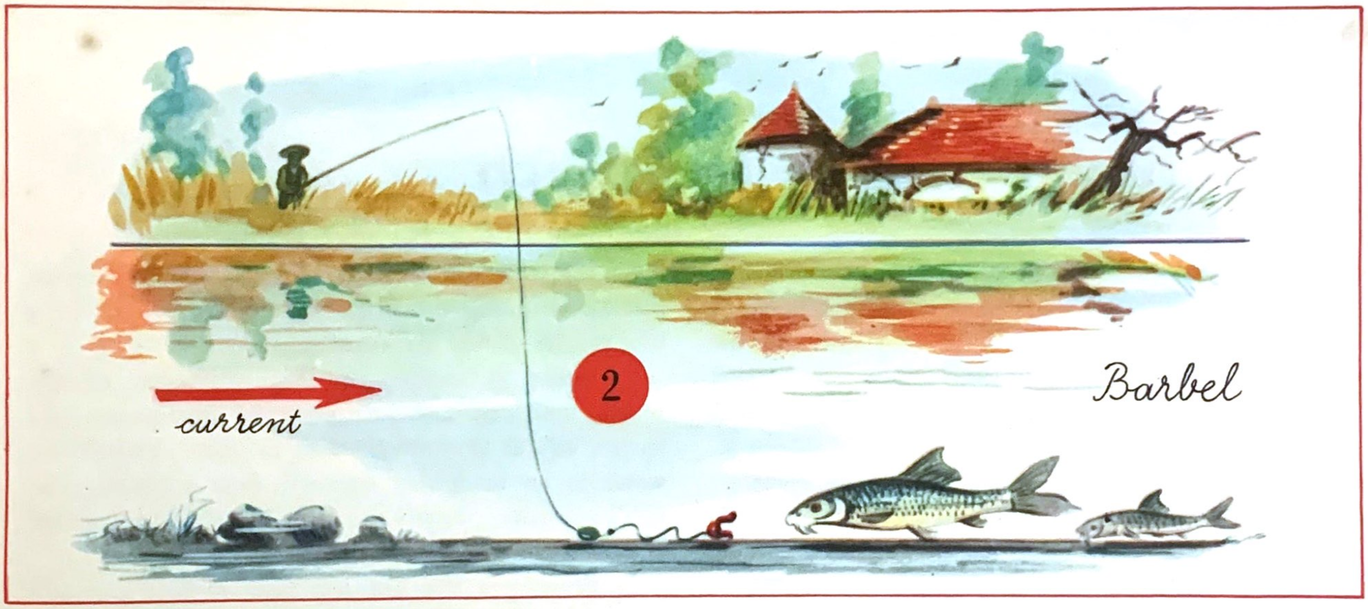
The angler casts out his line so that the baited hook will lie amid the groundbait, and sets the line taut. When the fish takes the bait it will cause the rod-tip to twitch. Then is the moment to strike. Once the barbel is hooked it will make strenuous efforts to free itself by lunging powerfully towards a reed-bed or group of rocks.

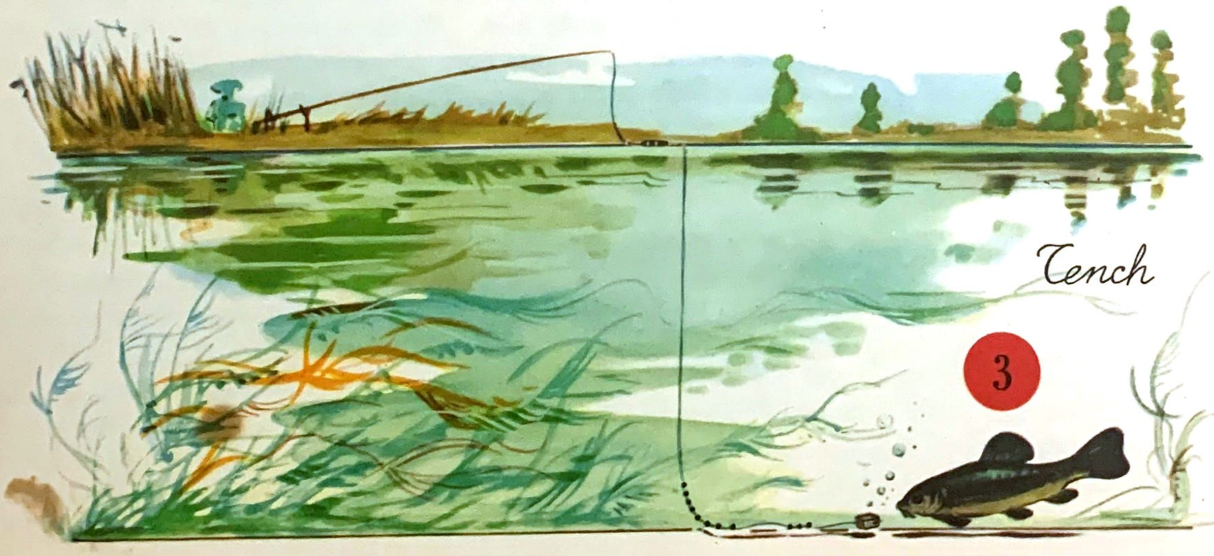
The TENCH. A silt-bottomed river or lake, with a plentiful supply of plant life and little current, is the favoured haunt of the tench. The manner of setting up the float, shotting and hook is shown here. The angler should, if possible, groundbait the selected place well beforehand in order to attract the tench to where the baited hook will be. Pulped bread mixed with maggots and chopped worm makes an excellent groundbait, and plenty of it is needed.

The greatest numbers of tench are taken during the early and late hours of daylight in the summer. Most tench-fishing enthusiasts make sure of being at the waterside by dawn. A sure indication that tench are on feed is the periodic emergence of air-bubbles at the surface, resulting from the fish disturbing the silt and weed at the bottom.




CLAY BALL
Carp
1


2
Barbel
current


Tench
3

Hempseed fishing for roach

Let us throw a grain of boiled hempseed into the water and see what happens to it. First of all it floats, then it slowly sinks, bobbing along with the current. Before it reaches the bottom it is spotted by a roach which dashes forward with its mouth open, hastily gulping the seed in order to savour it. First it spits it out and then sucks it in again.

We observe from this test that the roach is inquisitive, greedy and jealous. These are faults which we will use to our advantage. When fishing, we cast out the line and at the same time throw out a few grains of hempseed. This shower of seeds excites the roach and arouses its curiosity. Our fish loves hempseed; but whilst it is greedy it is also suspicious. Whilst it is eating it senses something abnormal, and becomes aware of the hook at the end of the line, or the resistance of the float, so it quickly spits it out. Thus we must strike quickly and sharply at the very moment the hook is in the fish's mouth, as indicated by the movement of the float.

In drawing A we see a normal bite, when the fish has bitten freely. In drawing B, on the other hand, it has simply pecked at the bait. The float stops for a second, showing a touch visible only to the practised angler.

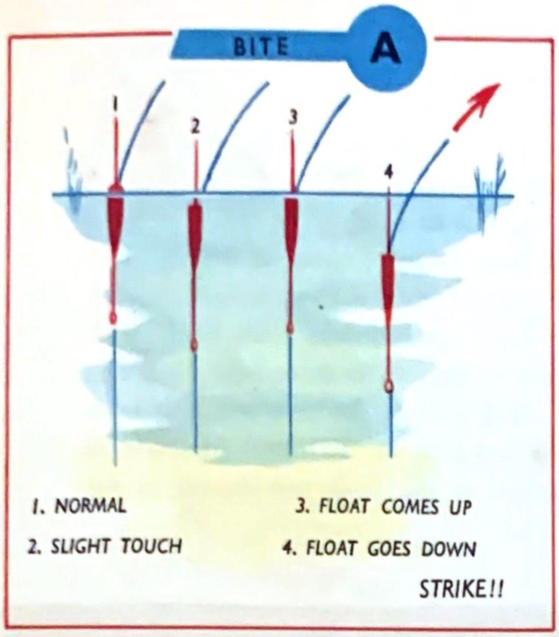
Drawing C illustrates another kind of bite, when the float rises instead of sinking. The fish has taken the seed but has moved up towards the surface instead of going down to the bottom. This is a bite similar to that shown in drawing D.

In order to exploit the inquisitiveness of the roach, both rod and line must be manipulated in such a way as to cause the bait to move through the water in an intriguing manner, thus attracting the fish's curiosity. Study the right-hand picture on the opposite page.

In drawing 1 the line has been thrown out and the seed sinks. The roach goes for the bait and sucks it in. We have detected the bite because the float has been delayed in taking its erect position in the water. The drawings 2, 3 and 4 show how to vary the movement of the grain of hempseed in order to make it attractive.

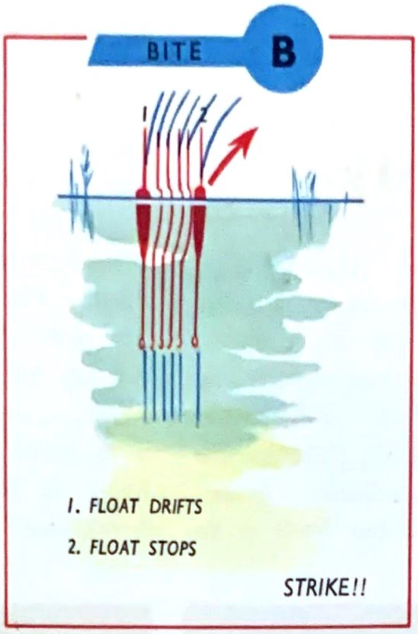
If we restrain the movement of the line periodically as it moves along with the current, it causes the bait to swing forward ahead of the float and rise upwards a little. The roach, fascinated and curious, will often bite at that moment.

Similarly, at the end of each swim down, we should pause slightly before drawing out the bait from the water. Roach often take the bait as it draws nearer to the bank—almost as though fearful of the bait escaping them.



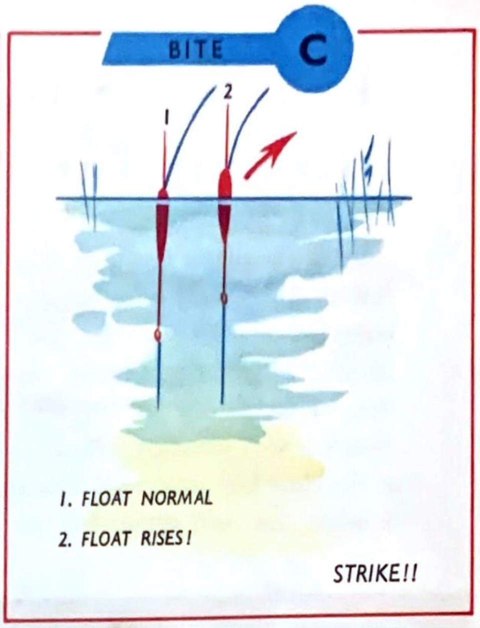
1. NORMAL
2. SLIGHT TOUCH
3. FLOAT COMES UP
4. FLOAT GOES DOWN

STRIKE!!



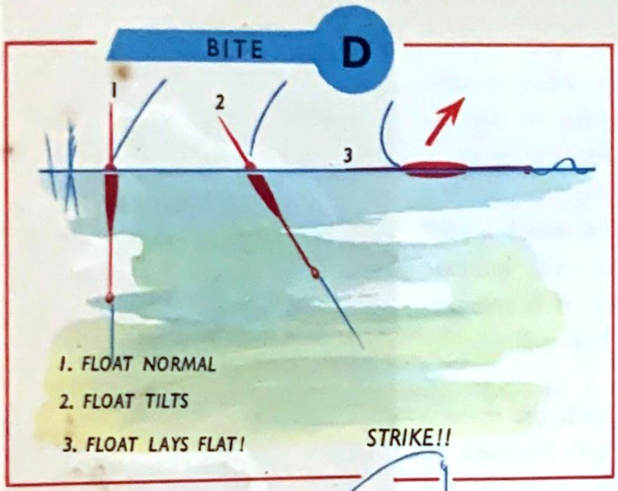
1. FLOAT DRIFTS
2. FLOAT STOPS

STRIKE!!



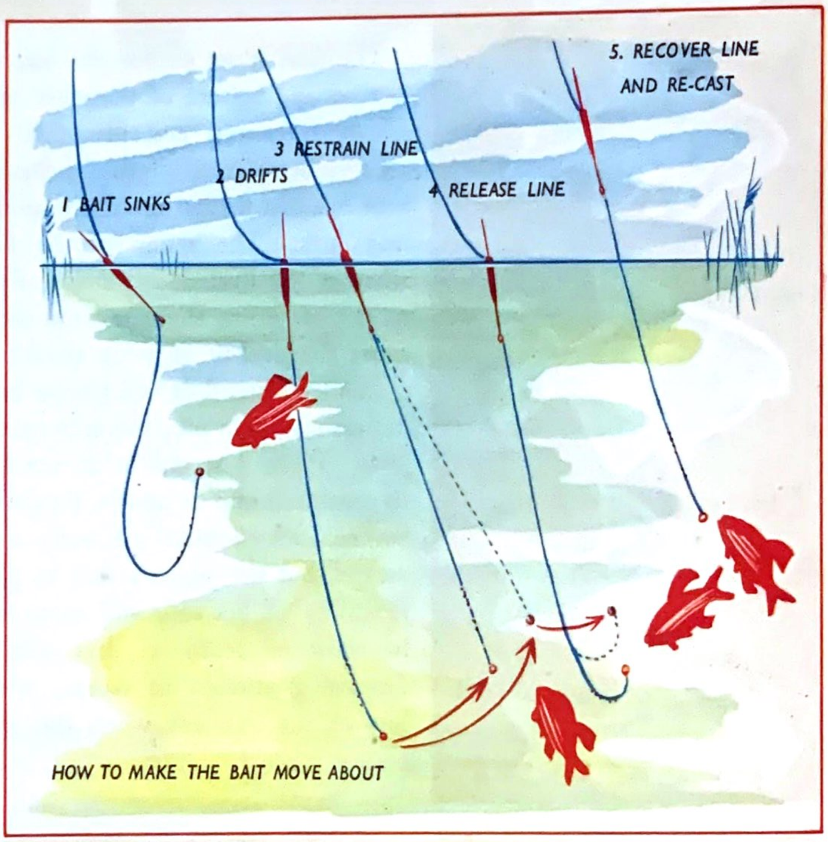
1. FLOAT NORMAL
2. FLOAT RISES!

STRIKE!!

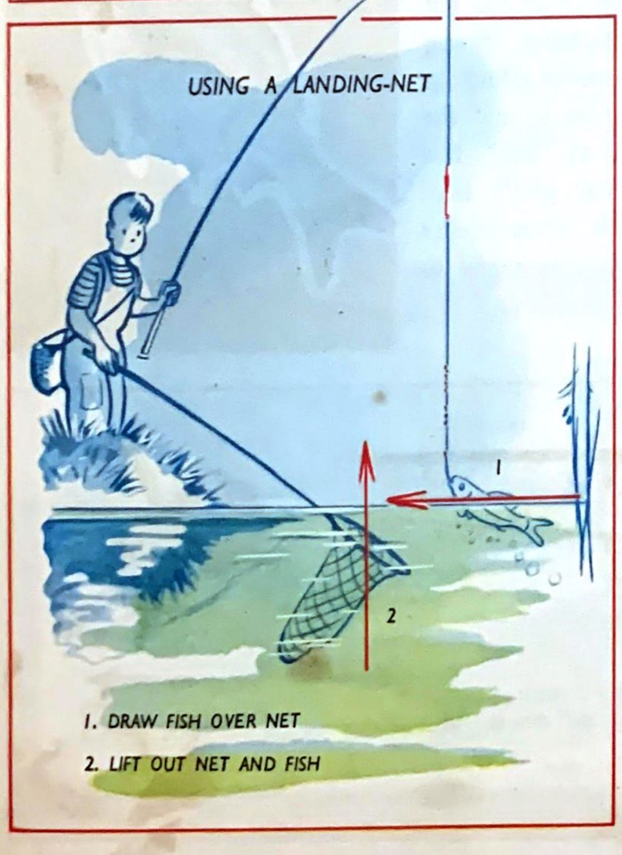


1. FLOAT NORMAL
2. FLOAT TILTS
3. FLOAT LAYS FLAT!

STRIKE!!

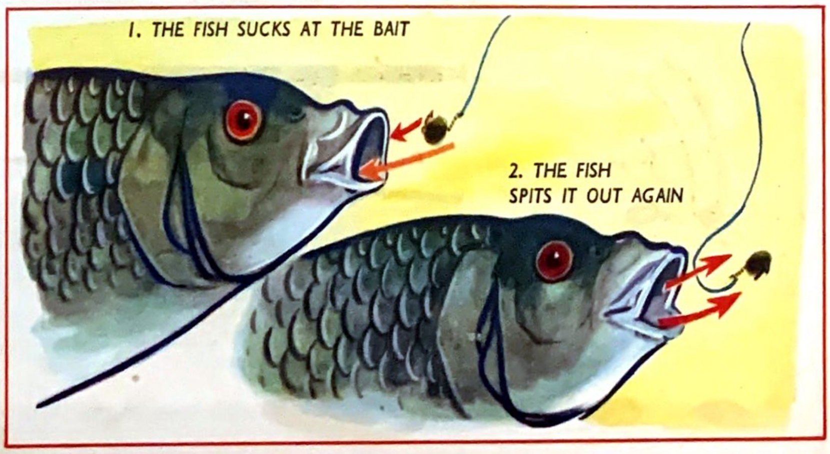


HOW TO MAKE THE BAIT MOVE ABOUT



USING A LANDING-NET

1. DRAW FISH OVER NET
2. LIFT OUT NET AND FISH

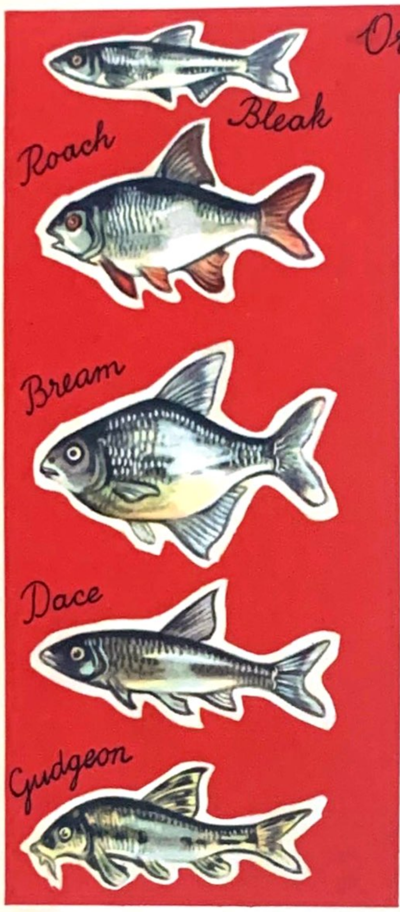

1. THE FISH SUCKS AT THE BAIT
2. THE FISH SPITS IT OUT AGAIN

Fishing with livebait for pike

Since the pike's favourite dish is a small live fish, that is what many pike anglers use for bait. The following species can be used for this purpose. *Bleak:* a glittering, lively, but somewhat fragile fish. *Roach:* one of from four to six inches in length is very effective. *Dace:* as lively and attractive as the bleak but sometimes difficult to obtain. *Bream:* a small one will serve, but its action tends to be sluggish. *Gudgeon:* this lively and vigorous fish is the ideal pike bait.

The best type of rod for pike fishing is a stout two-piece one about eight or nine feet in length, that has a stiffish action. The reel, preferably a fixed-spool type, should hold 50 or more yards of nylon line, the latter being of about 12 lb. breaking-strain. The large round float, is called a bung. The pike's strong, toothed jaws may easily snap through the nylon line, so a short length of wire " trace ", on which a three pronged, or treble hook is mounted, is attached to the line. Methods of fixing the livebait to the hook are shown on the facing page.

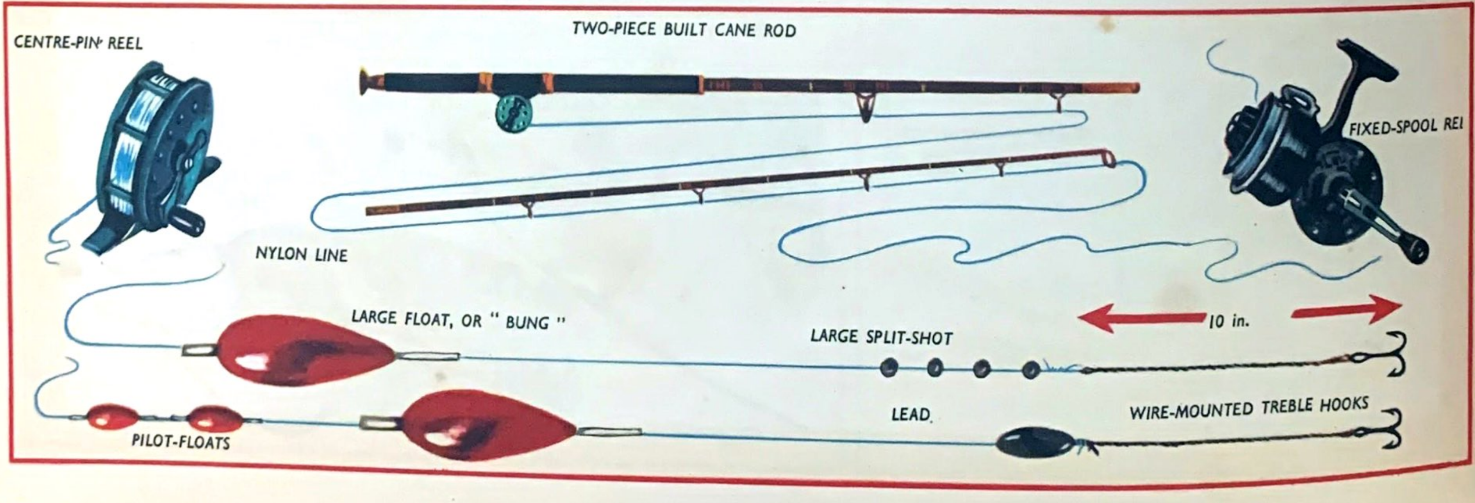
Ordinary livebaits

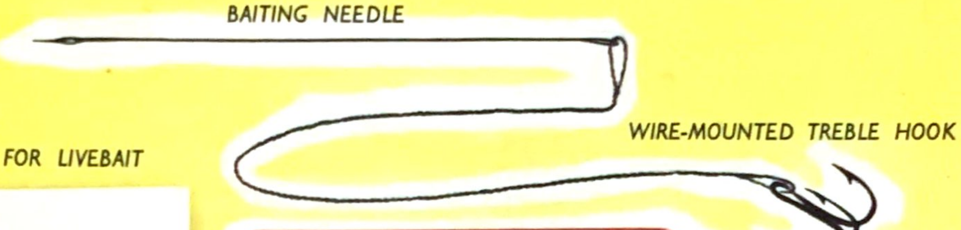


Other livebaits

The float is set so that the bait can swim around just off the bottom of the river or lake, to explore among the weed and plant-life. Fishing from a boat is better than from the bank because with a boat one can fish all the likely spots in which a pike may lurk. The action of the float will indicate whether the livebait is moving about, if it remains motionless a few slight tugs on the line will usually cause the livebait to move around.

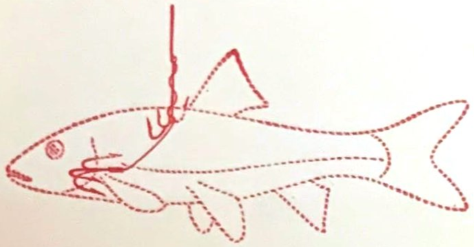
Suddenly the float will plunge beneath the surface indicating that a pike has taken the bait between its jaws. Pause a second or so until the pike has got its meal well into its mouth, then strike hard. Stung by the hook the pike will make strenuous efforts to escape, but the angler's skill in playing it, and the flexibility of his rod, will soon tire the fish. But he must be ready to deal with the pike's final despairing attempt to escape, which often occurs just at the moment when the angler is ready to haul it from the water.

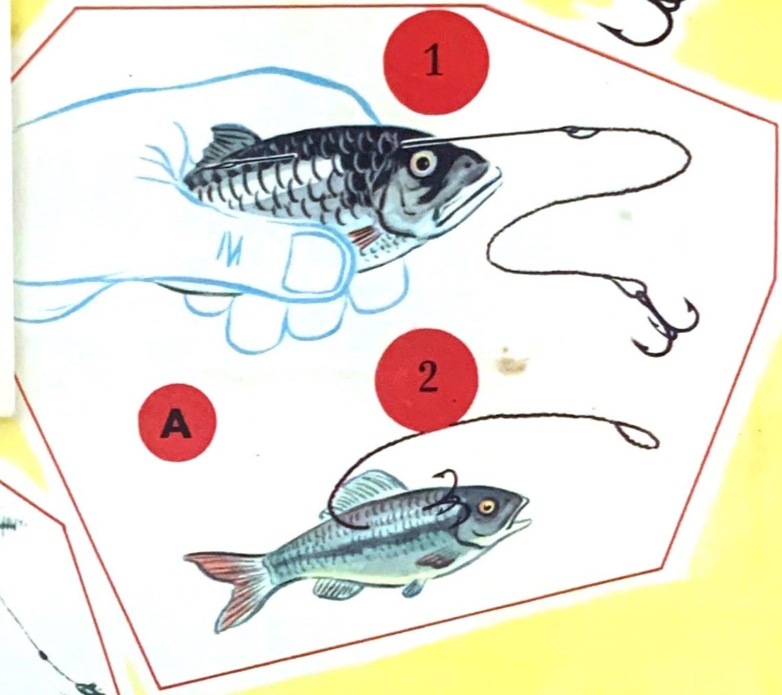


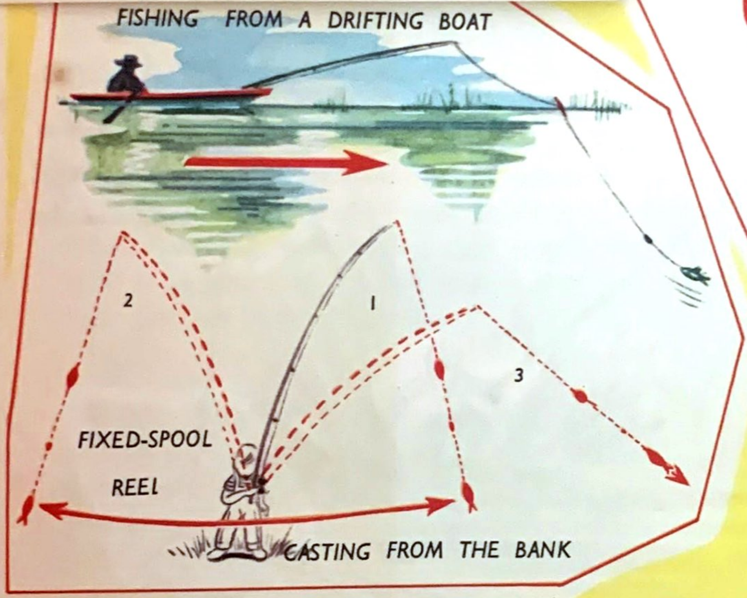


NOTE

Although the tackle shown at A for mounting livebait is used by Continental anglers, it is forbidden in many British waters. Illustrated below is the "Jardine" or "snap" tackle, which is commonly used in pike fishing throughout Britain.

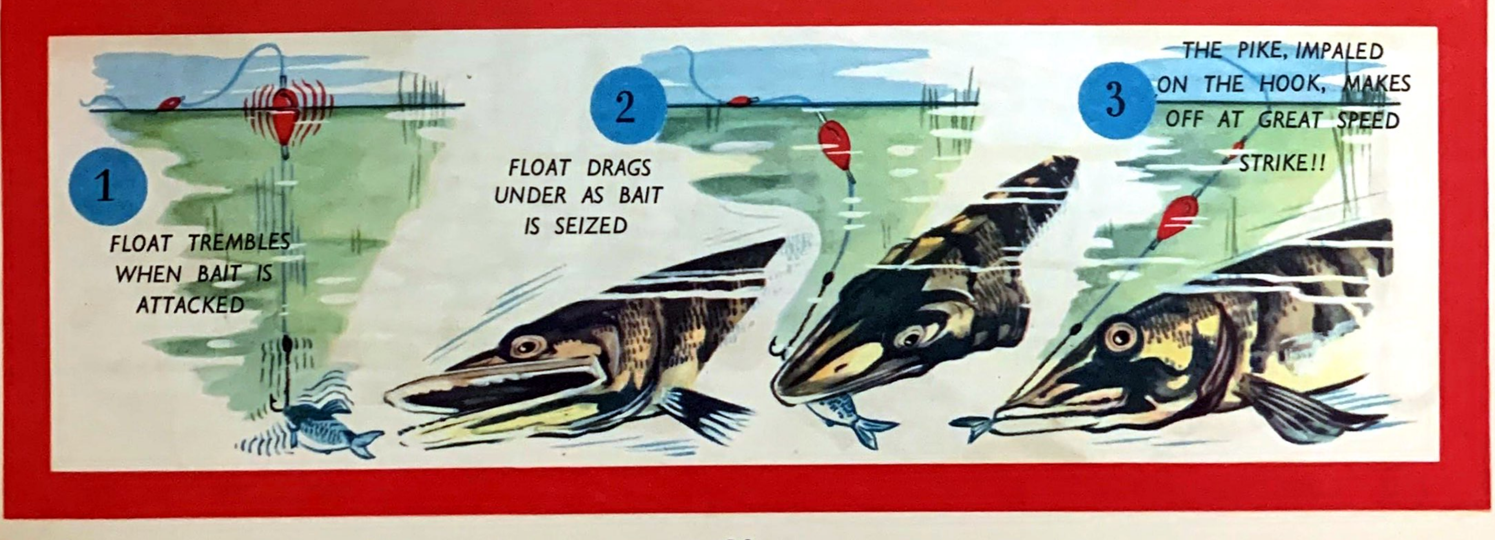


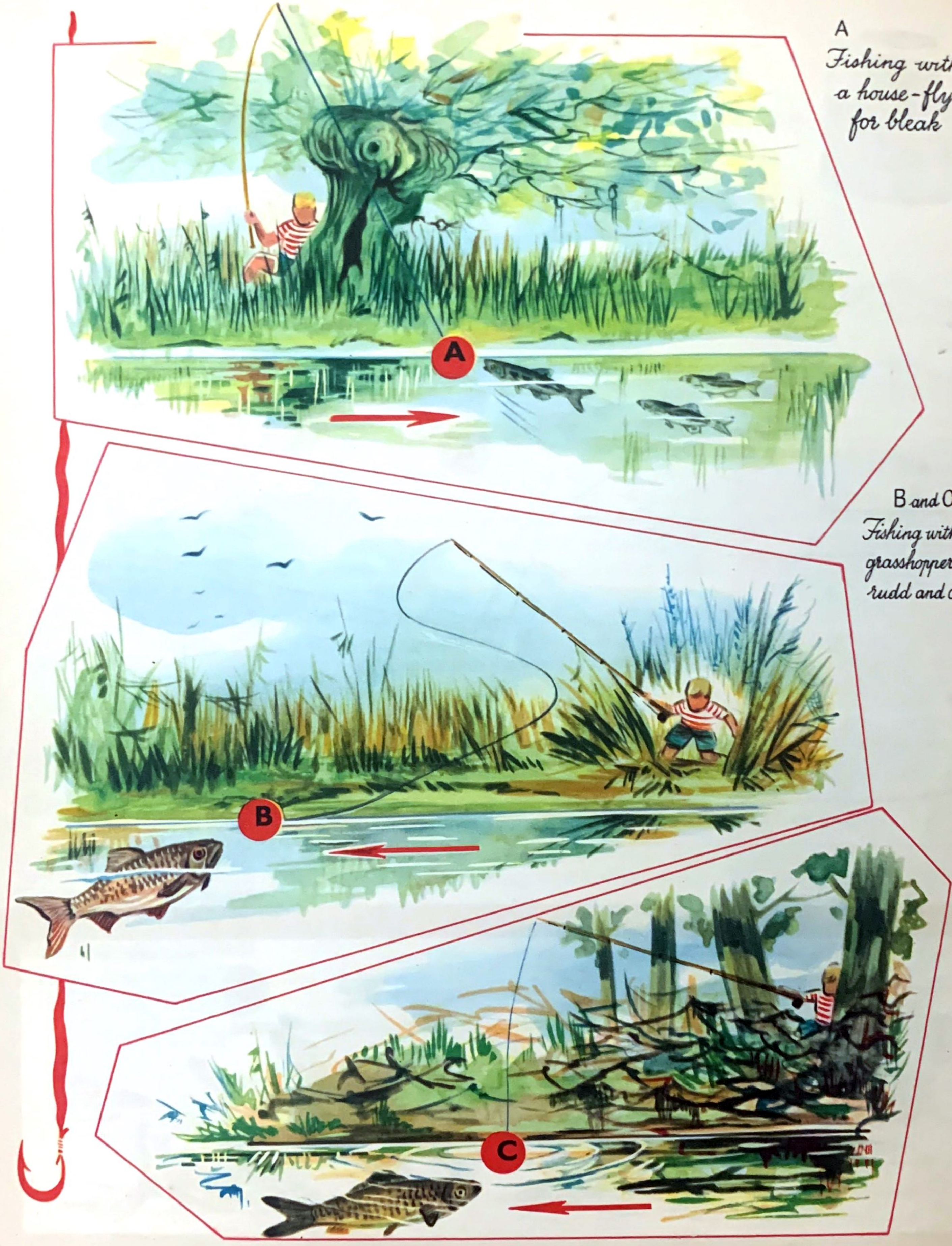




METHODS OF FIXING LIVEBAIT:

- A. 1. *Lift a scale just behind the head of the bait, insert the baiting needle and push it through just beneath the scales. Let the needle emerge near the dorsal fin.*
  2. *Draw the wire through until the treble hook rests against the shoulder of the fish.*
- B. *Method of lip-hooking a livebait on a single hook.*
- C. *Some anglers prefer to thread the wire lengthwise through the livebait from head to tail.*


1
FLOAT TREMBLES WHEN BAIT IS ATTACKED
2
FLOAT DRAGS UNDER AS BAIT IS SEIZED
3
THE PIKE, IMPALED ON THE HOOK, MAKES OFF AT GREAT SPEED
STRIKE!!



A
Fishing with a house-fly for bleak

B and C
Fishing with a grasshopper for rudd and chub

Surface fishing for bleak, rudd, chub and dace

Bleak. Are you smart at catching house-flies? If so, so much the better, for before starting to fish you must provide insects and keep them in a matchbox, after having lightly squashed their heads. With the box in your pocket you can set out for the stream where the bleak play close to the surface of the water.

A light bamboo rod, thin nylon line and a Nº. 18 hook, comprise the whole tackle. You then take a fly and impale it on the hook through the thorax, between the head and the stomach.

Hiding behind a tree, you make the fly skim along on the surface of the water, holding the rod vertically. The bleak rises to swallow hurriedly. You haul in the line at the precise moment when the bleak starts its downward plunge with the fly in its mouth. When selecting your fishing spot ensure that the wind is at your back; it will help to carry the very light line out on to the water.

Rudd. Like an Indian on the war-path you must make a very stealthy approach to the water where this quarry lies, so that it does not suspect your presence.

The rod should be 14 to 16 feet long, fitted with a small drum-type reel containing 15 yards or so of light silk line. To the end of the line is tied a four-foot length of thin nylon, to which a size-12 hook is fixed. The bait is a green grasshopper captured in the meadows; a wingless one is the best.

Rudd are fond of quiet stretches of water where they can bask in the sun, and which you will have been quick to spot. Draw near without allowing yourself to be seen, on all fours or on your stomach if necessary. Be sure your rod does not project beyond the river bank. At the slightest sign of your presence the shoal will make off in a whirling flurry of water.

Pay out a length of line equal to that of the rod and cast like a whip, with a gentle movement. The grasshopper falls in the middle of the fishes, and up they come at once. Will they bite? Certainly, if they have not seen you. They will even vie with one another to be the first to be caught. Watch your grasshopper carefully, or simply the line itself. If it moves, or if it becomes taut, haul in, for the fish is at the other end.

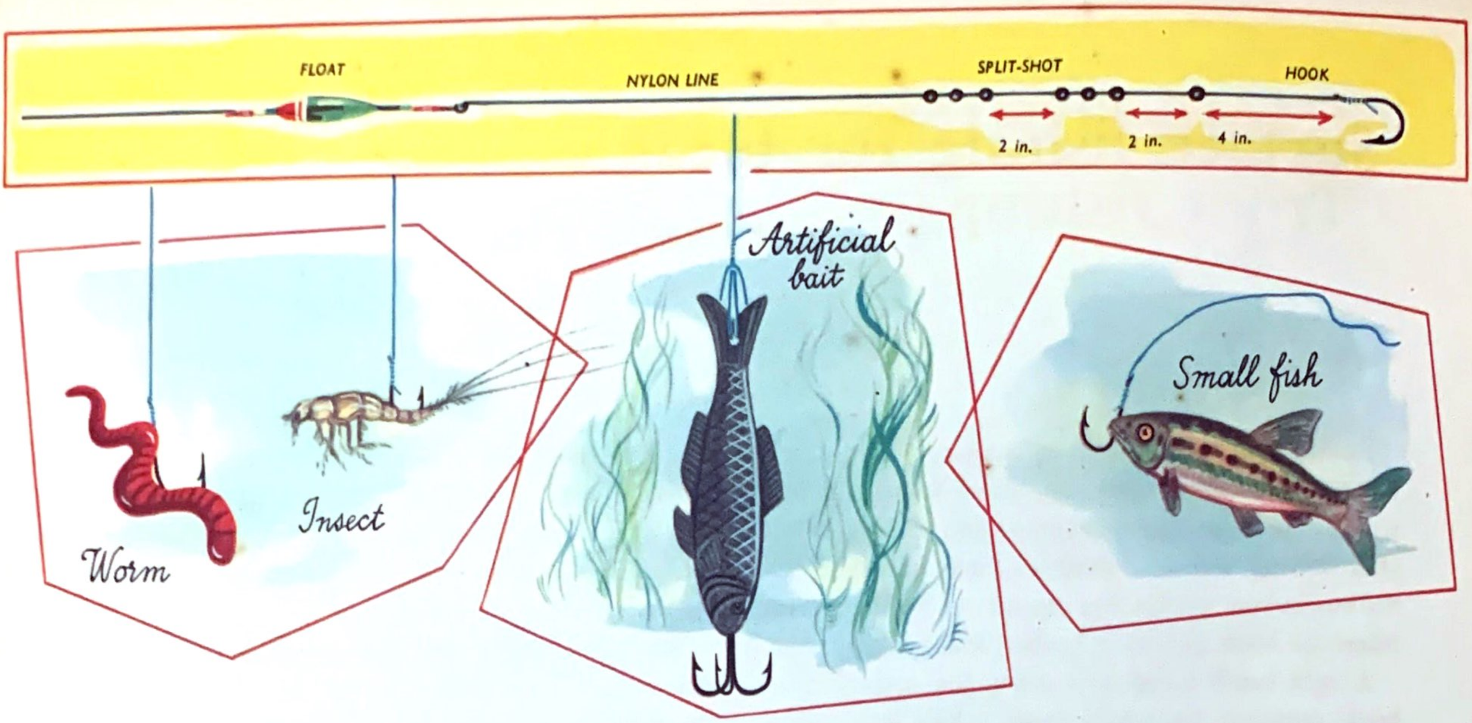
Often it happens that the grasshopper drowns, and sinks. This does not matter; rudd will eat grasshoppers as readily beneath the surface as on it. But above all make sure you fish without being seen, for therein lies the whole secret of success.

Chub and dace. The same rod, the same line, and the same method will also catch chub and dace, but the location in which they are found will be different. Instead of open grassy banks, we must select shaded places where shrubs and trees overhang the water's edge.

During the warmest part of a summer's day, chub and dace lie at rest in the shade. Approach the bank quietly and unseen, having first set up your rod and tackle. Push your rod-tip gently through the branches of a waterside bush, until it projects slightly beyond the outstretching foliage. Now pay out a short length of line until the grasshopper bait rests just on the water's surface.

It's just what the fish are waiting for—an insect which appears to have dropped from the overhanging bush. According to circumstances the fish may take the bait immediately, or cruise gently around before deciding to gulp at it suddenly.

When the fish bites, pause momentarily before striking, and do not jerk the line too strongly, lest you cause the line to break. If the hooked fish resists vigorously let it tire itself out until you can draw it gently into the bank. Whether you will be able to catch another fish from that spot, depends largely upon how quickly and quietly you can draw the fish from the water without creating too much of a disturbance.

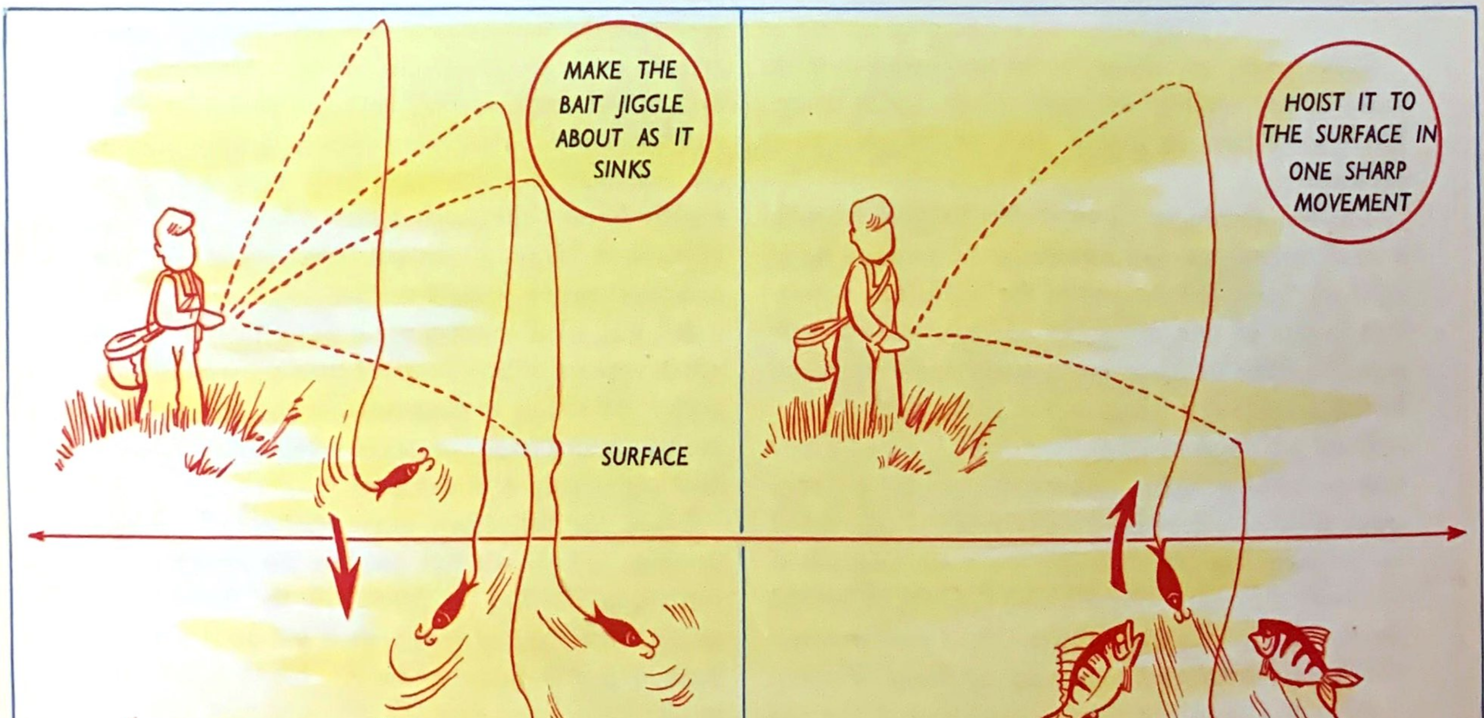


Angling for perch

In the illustrations above we see four kinds of bait that are very effective when fishing for perch. A worm, an insect, an artificial bait, and a small live fish. Perch are to be found lurking in a gap among a clump of reeds, or in an eddy below a waterfall, or below a side-stream, or just to the rear of an underwater obstruction, such as a tree-stump.

The float is set so that the bait is held just above the river bed, where its struggles on the hook attract the attention of the ever-watchful perch.

The artificial bait is a flat piece of tin in the shape of a fish. This zig-zags as it sinks to the bottom, and is then periodically raised and allowed to sink again, to attract the attention of a perch.


MAKE THE BAIT JIGGLE ABOUT AS IT SINKS
SURFACE
BOTTOM
HOIST IT TO THE SURFACE IN ONE SHARP MOVEMENT

GAME FISHING
Trout fishing

The cool water of the winding stream under the bushes cascades merrily from stone to stone. The trout, hardly distinguishable against the gravel river bed, is there with its nose in the current. It is watching the surface, looking for insects that come along borne by the current. Why does this nice fish fail to bite when it sees your grasshopper?

There you are at the side of the river one fine summer morning, your rod in your hand. To the rod is fitted a small reel and a nylon line without weights or float, to which a size-0 trout-hook is tied. Stick an insect on the hook and creep upstream.

Tactics consist of allowing the grasshopper to fall in the water alongside the bank without trying to see what is happening. You must gauge where the insect will fall and how the current will carry it along. If a trout is there it will rise to take the bait. Watch the line at the spot where it disappears behind the bank. If it is pulled, if it moves to and fro, or if it stretches taut, a trout is on the other end. Give it time to swallow and then haul in.

In spring, splendid may-flies are to be seen flitting and hovering over the water. Like mad things the trout leap, seize and swallow these delicious flies. You must profit from their hunger. Fix a may-fly to you hook and fish the stream " blind ", as you do with a grasshopper.

On a wide stream or a lake, we use a special method: fishing with " the fly that flies. " Your rod is fitted with a very light silk line to the end of which is attached a length, or " cast, " of nylon bearing a size-0 trout-hook. It carries neither float nor weights.

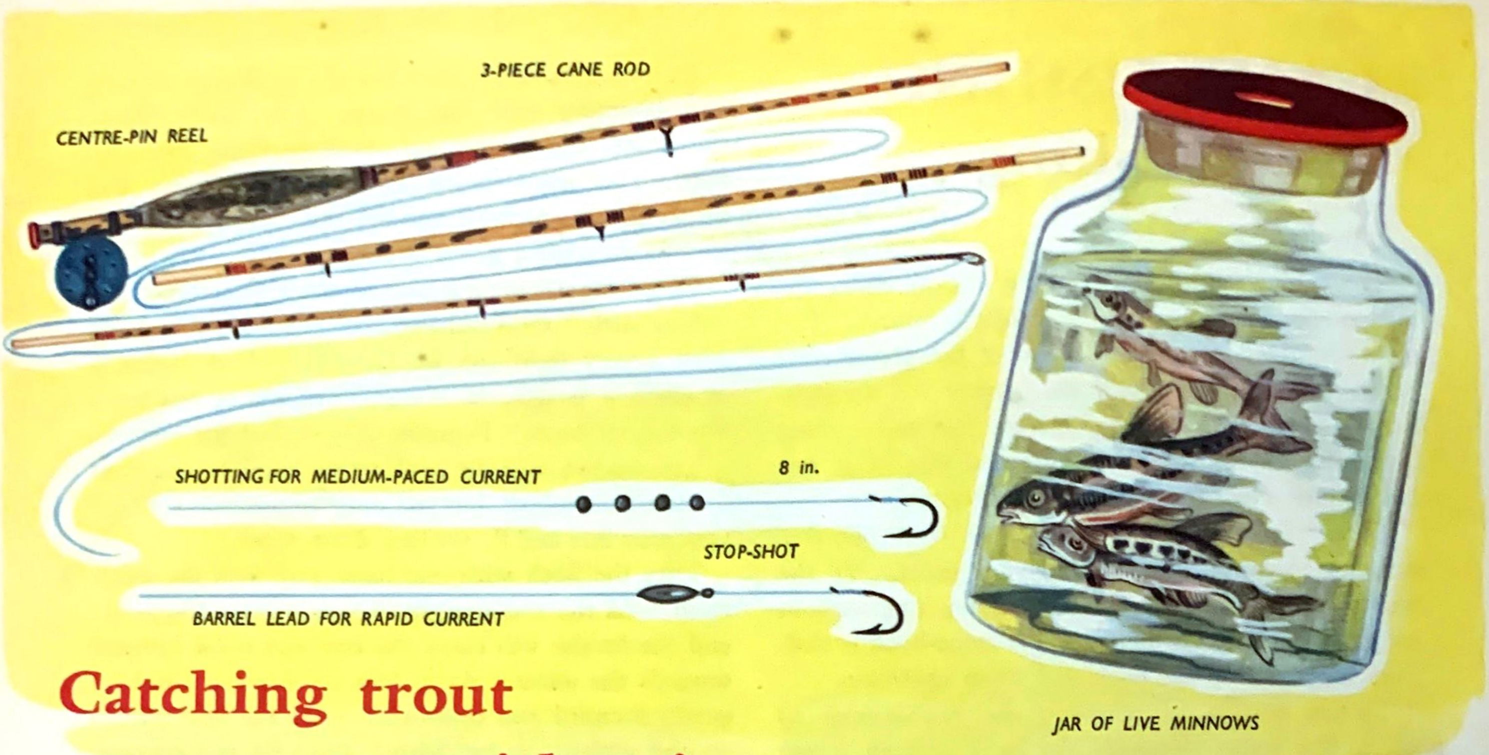
You can fish from the bank by wading into the river or even from a boat, but you must so position yourself that your line and fly are cast down wind.

Take the hook with one hand and with the other hand hold the rod upright. Now release the hook, and the breeze will carry the line and hook forward towards the water. As it does so, move the rod-tip gently forward and downward until the bait alights on the surface, to be carried along by the current.

When the trout rises to take the fly it will create an ever-widening circle of ripples on the surface, from the centre of which the trout sucks at the fly.

As soon as this happens, ease your line momentarily and then tighten it with a short, sharp flick of your wrist. Once the trout is hooked it will give you a thrilling tussle before you succeed in landing it.

Fishing for trout with a grasshopper (above) and a dry fly (below)



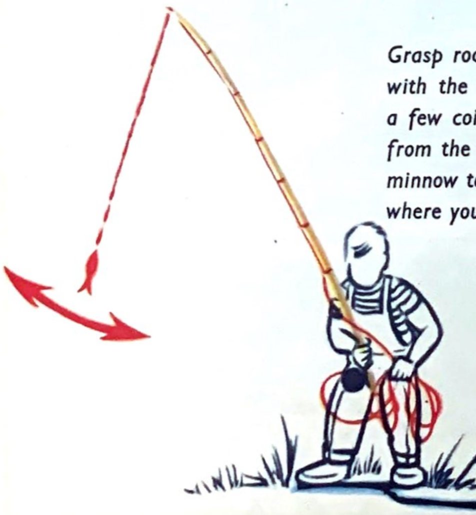
Catching trout with minnows

Trout will never neglect an opportunity to swallow a minnow. The unfortunate minnow is the trout's choicest delicacy. But, appropriately enough, minnows often lead trout to their doom, much to the angler's joy. The angler uses a rod and line of the kind shown above. He carries a jar containing minnows that will stay alive for the whole day if care is taken to change the water from time to time. Thus equipped, the angler explores the stream, casting the minnow as he goes.

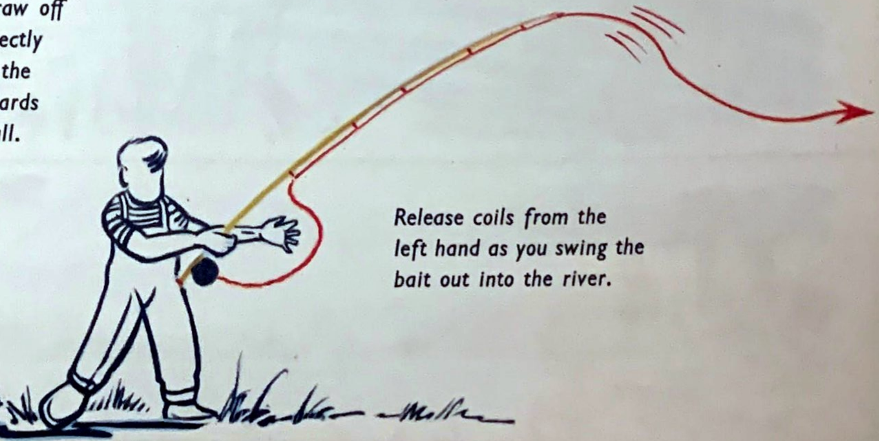
This is how to cast the line at the end of which the minnow is hooked through its lips. Release a length of line that is as long as the rod, and then, directly above the reel, draw off a few more loops of line holding these in your left hand. Next raise the rod-tip and swing the minnow to and fro in the direction of the place in which you want it to drop.

When you have imparted sufficient swing, release the line held in your left hand. The momentum you give to the lead weight and the minnow will draw line out from the rod, so that the minnow will fall at the selected spot. Do not, at your first cast, attempt to cast a long distance. You will need a little practice before you become proficient.

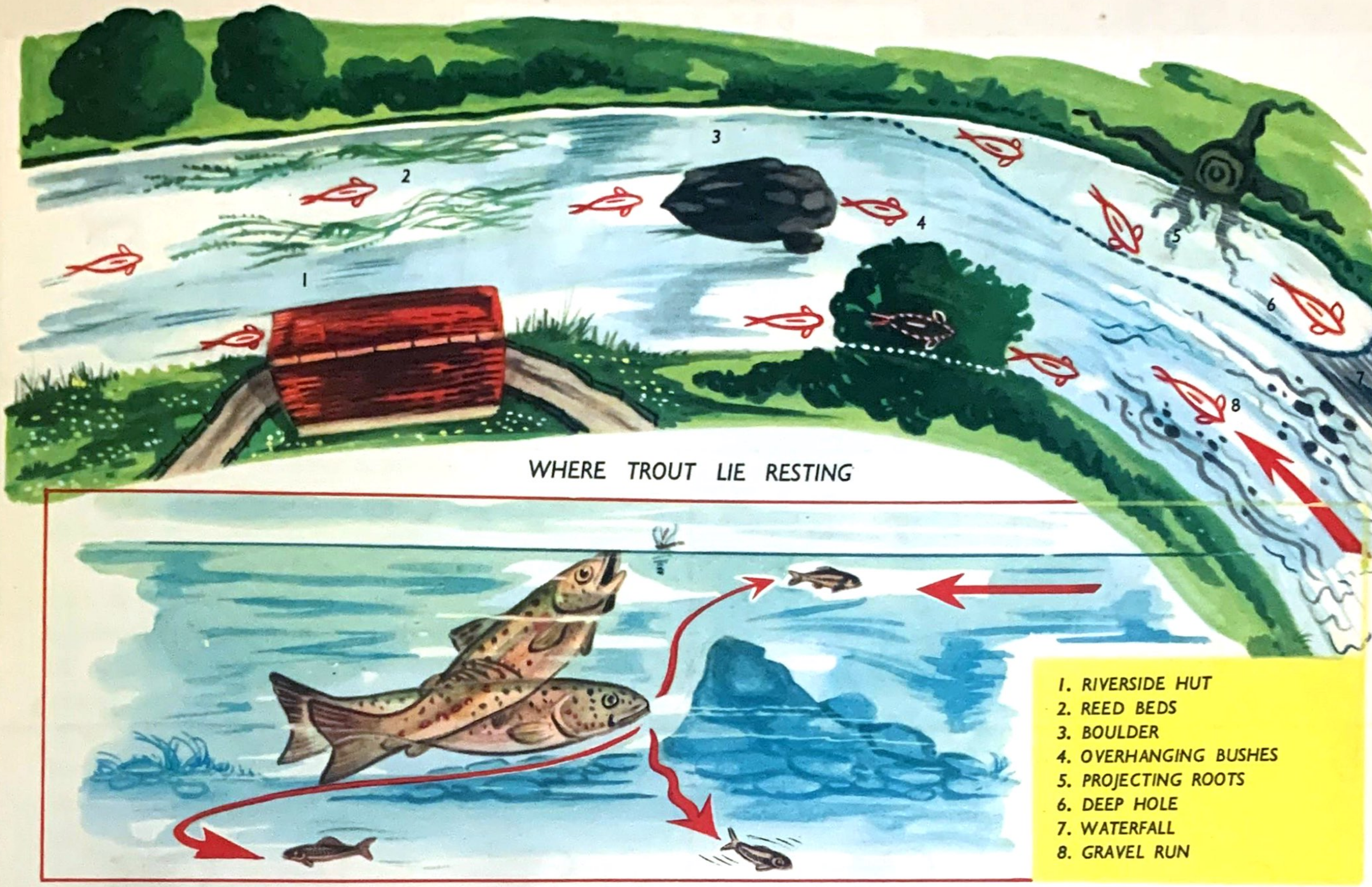
Where do the fish lie? In the picture of an imaginary stream, at the top of the next page, are seen features that are typical of those found in and beside most rivers. On the left, a trout is seen behind a bank of weed, where it shelters from the force of the current; from time to time it may move upstream



Grasp rod in right hand and, with the left hand, draw off a few coils of line directly from the reel. Swing the minnow to and fro towards where you wish it to fall.



Release coils from the left hand as you swing the bait out into the river.



WHERE TROUT LIE RESTING

a little alongside the weed, or near to a bankside structure, where the trout is shaded from the sun.

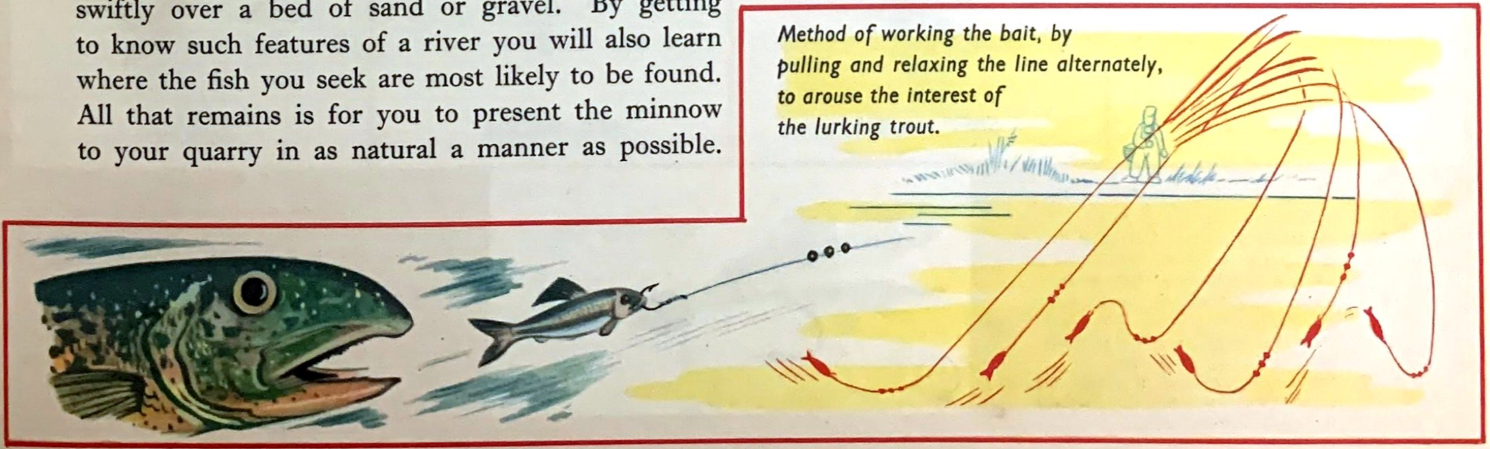
A midstream rock serves as a refuge for the trout; it usually rests just behind the rock, but may well lie ahead of it if the current is not too strong. Beneath an overhanging bush is also a favourite haunt for it.

Trout often favour the bend of a river where the current hollows out a channel in which they can shelter, or else they may lie just downstream near the bank on the inside of the bend.

At the right of the picture you can see that which the fisherman calls a gravel-run, that is to say, a spot frequented by trout, where the stream courses swiftly over a bed of sand or gravel. By getting to know such features of a river you will also learn where the fish you seek are most likely to be found. All that remains is for you to present the minnow to your quarry in as natural a manner as possible.

Try to cast a little above the spot where you believe the trout to be hiding. As soon as the minnow reaches the water, wait for the line to tighten; then move the tip of the rod slightly in order to make the fish dangle. Borne along by the current the minnow descends zig-zag fashion. When you pull, it rises towards the surface; when you relax, it is drawn down by the weights and somersaults towards the bottom.

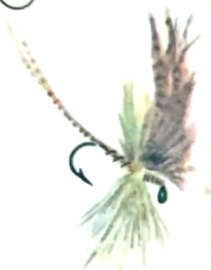
The trout sees all this happening, thinks that it is looking at a fish in difficulty and therefore easy to capture. It is up to you to do the rest, once the trout is straining frantically to escape from the hook.



Method of working the bait, by pulling and relaxing the line alternately, to arouse the interest of the lurking trout.

DRY FLIES

EPHEMOPTERA

①


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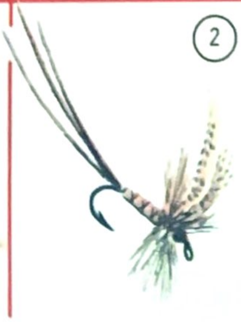
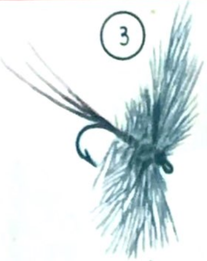


MAYFLIES

③


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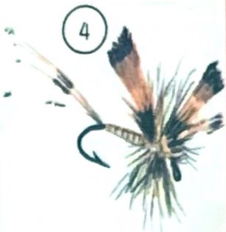
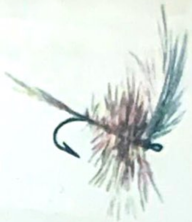
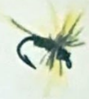


PANAMA

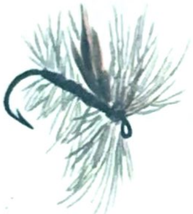
⑤


WICKHAM'S FANCY

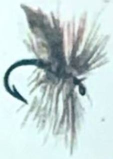
⑥


OLIVE DUN

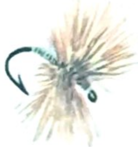
TRICHOPTERA

⑦


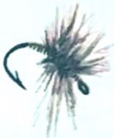
SILVER SEDGE

⑧


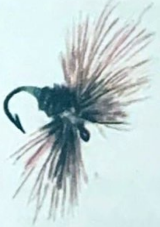
SAND FLY

⑨


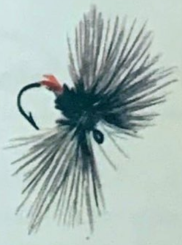
RED SPIDER

⑩


GREY SPIDER

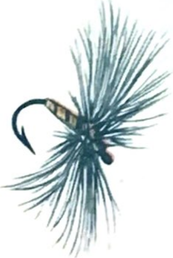
⑪


COCH-Y-BONDHU

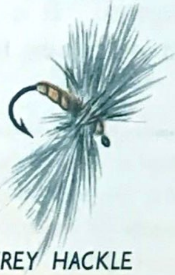
⑫


ZULU

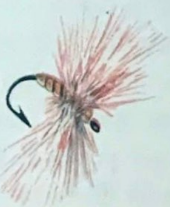
WET FLIES

⑬


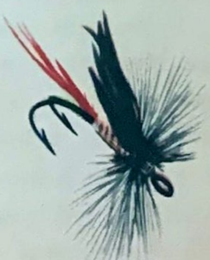
BLACK HACKLE

⑭


GREY HACKLE

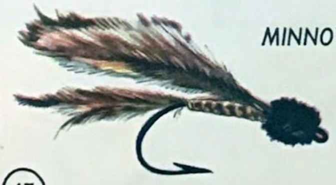
⑮


RED HACKLE

⑯


BUTCHER

1 - 2 - 3 *varieties of mayfly, used mainly from mid-May to the end of June.*
4 *an exotic fly, used in a large size during the mayfly hatch, and in a small size throughout the summer.*
5 *a small fly for summer mornings and afternoons.*
6 *another small fly especially suited for morning periods in summer.*
7 - 8 *popular patterns used in a large size at dusk, and in a small size throughout the day on broken water.*



MINNOW FLY.

⑰

9 - 10 *imitation spiders for use all through the season, mainly during warm spells.*
11 - 12 *imitations of small beetles, popular all the season on many waters.*
13-14-15 *wet flies that are useful all the season, especially on fast rivers.*
16 *a large wet fly, useful in the evening on fast, broken waters.*
17 *a lure representing a minnow, useful in deep places such as below waterfalls, where the larger trout lie.*

Fishing with an artificial fly

On warm sunny days trout come to the surface and swallow small insects that have fallen into the water. Fly fishing consists of catching these fish by offering them, instead of a real insect, an artificial fly consisting of a hook to which are fixed pieces of feather. There is quite a variety of artificial flies. The examples shown on the opposite page are all excellent and suitable for all kinds of surface fishing.

The angler needs suitable tackle which will enable him to cast the fly well out into the river. His rod, anything from 8 to 10 feet in length, is usually made of split-cane and is notable for its flexibility and responsiveness. His reel contains about 30 yards of what is called ,, double-taper " line—that is to say its thickness at the middle tapers off gradually towards each end—of greased silk or nylon. To this is attached the cast, made from gut or nylon, to which the fly-hook is secured.

The casting of the fly is effected by wielding the rod and line as though it were a large whip. It is the character of the line that enables the fly to be whisked through the air and projected towards the spot at which the angler is aiming.

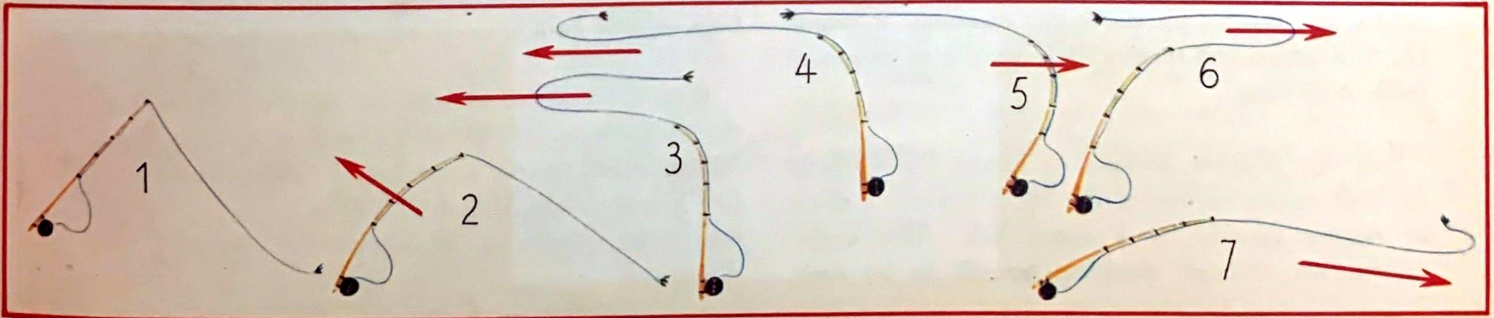
The angler grasps the rod in his right hand with his thumb laying along the back of the handle. With his left hand he controls the amount of line drawn off from the reel. The drawings below show progressive stages in the movement of the rod during the cast, and the flight of the line through the air.

Starting from the initial position (1), the rod is raised briskly (2) to throw the line backwards (3). By its weight, the line stretches out and pulls on the rod (4). The angler, still grasping the rod firmly, propels the fly forward (5). The line, borne through the air by its weight, stretches out forwards (6). When the line nears the limit of its forward motion, the angler ,, follows through " by lowering the rod-tip so that the fly will alight gently on the surface of the water (7).

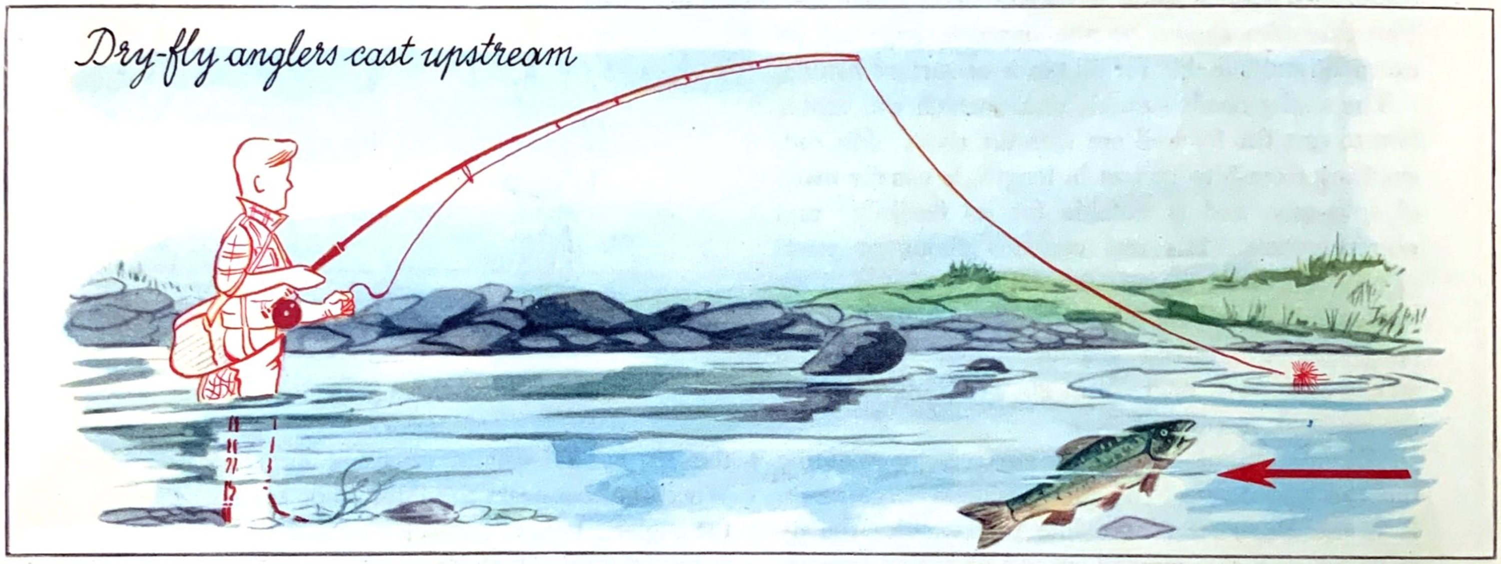
The beginner at fly-casting must make his first attempts with a shortish line, whipping vigorously but flexibly. Later he can steadily increase the length of his ,, whip. " Care must be taken to allow the line to play out to its fullest extent rearwards before thrusting on the rod to make the forward cast.

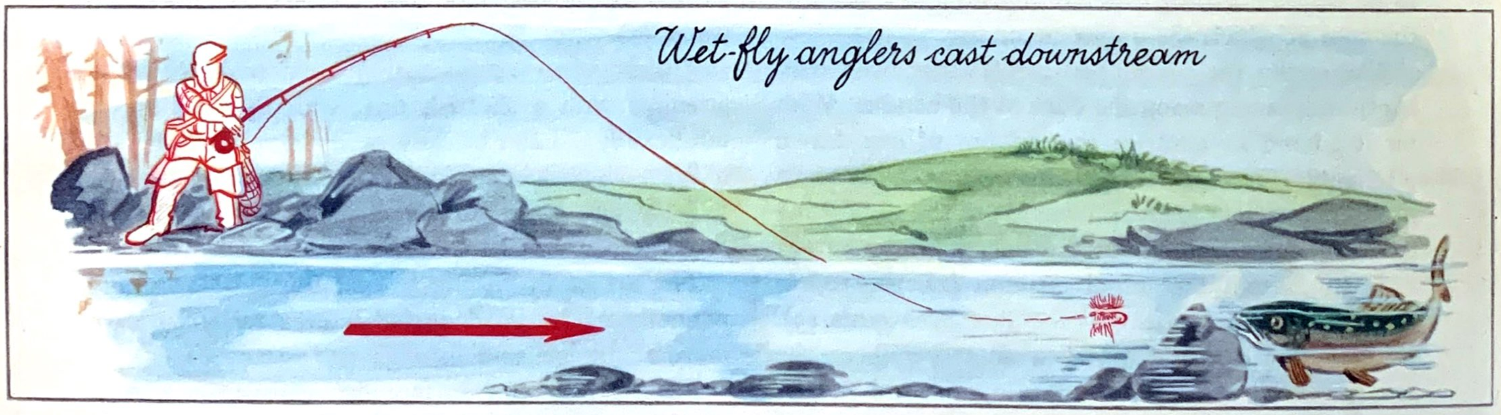
The art of fly fishing is best learned slowly and patiently. The good angler is ever ready to learn more about fish and fishing.

Fishing blind for surface fish consists of casting the line and artificial fly whip-like into the water,



Exploring still-water lies from a boat



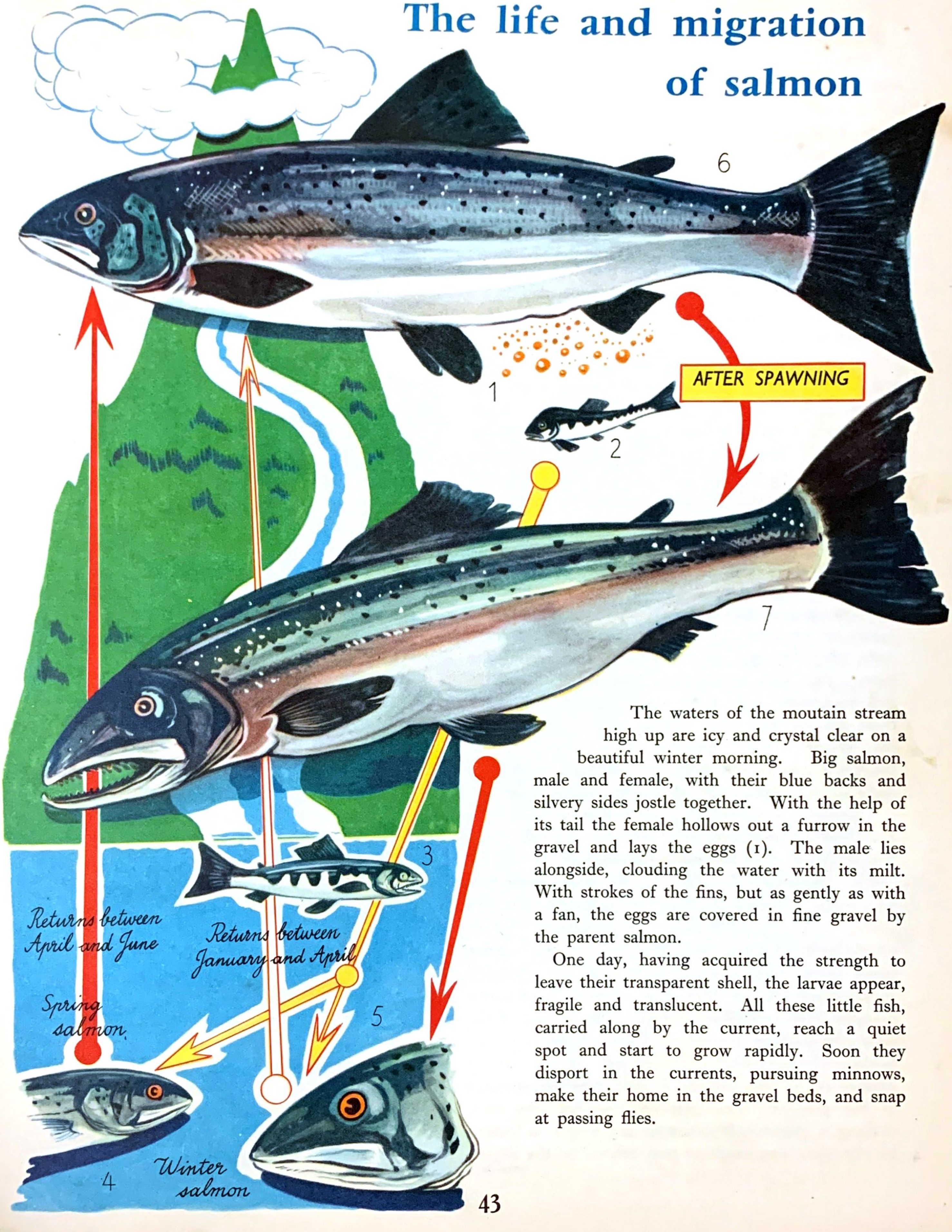


quickly hauling in, and then casting again. The fish, attracted by the fall of the fly on the surface, comes up, only to see the insect escaping; it awaits the fly's return and throws itself upon it as soon as it lands next time.

DRY-FLY FISHING consists of letting the artificial fly drift on the surface of the water towards a circle of ripples created by a rising fish. The angler approaches without allowing himself to be seen. He casts the fly slightly upstream of the trout, so that the current will make the artificial insect drift back to the fish.

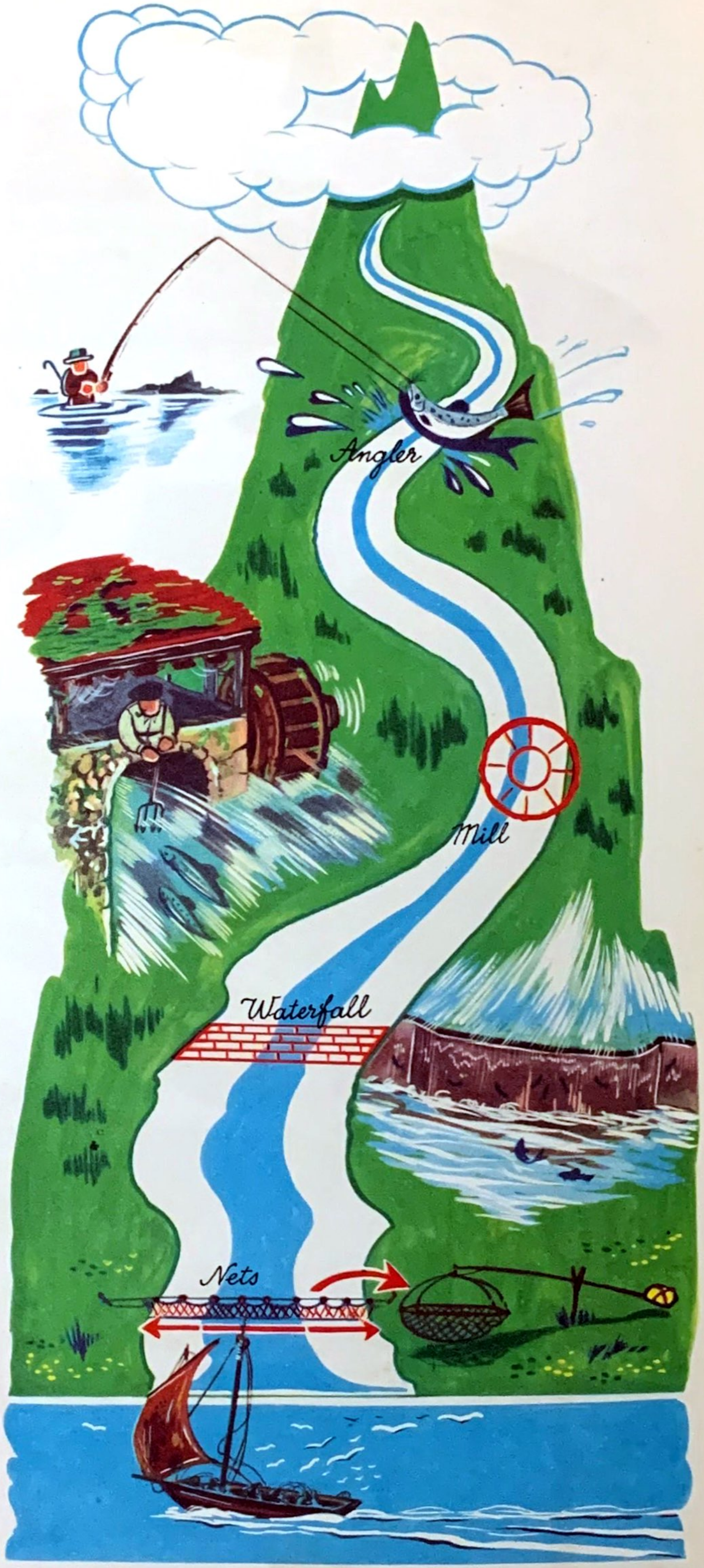
WET-FLY FISHING consists of allowing an artificial fly to drift under water towards a lurking trout. Moved along by the current and looking very much like a real insect, the drowned fly is swallowed by the trout, which is hooked before realizing the deception.

The life and migration of salmon


6
1
AFTER SPAWNING
2
7
3
Returns between April and June
Returns between January and April
Spring salmon
5
4
Winter salmon

The waters of the moutain stream high up are icy and crystal clear on a beautiful winter morning. Big salmon, male and female, with their blue backs and silvery sides jostle together. With the help of its tail the female hollows out a furrow in the gravel and lays the eggs (1). The male lies alongside, clouding the water with its milt. With strokes of the fins, but as gently as with a fan, the eggs are covered in fine gravel by the parent salmon.

One day, having acquired the strength to leave their transparent shell, the larvae appear, fragile and translucent. All these little fish, carried along by the current, reach a quiet spot and start to grow rapidly. Soon they disport in the currents, pursuing minnows, make their home in the gravel beds, and snap at passing flies.



These young salmon, called parr (2), live in freshwater for about two years and then make their way in short stages towards the estuary of the river, when they are called smolts (3). They are still young fish that the angler must allow to grow bigger. The small salmon, at last capable of undertaking the great adventure, follows the current which carries them towards the unknown regions of the ocean. Guided by a marvellous instinct, they travel fast, outdistancing the enemies that lie in wait for them, and penetrate far out into the ocean. Arriving at their destination they live in a world of near-darkness swarming with shrimps and other crustaceans. The salmon successfully hunt many kinds of small creatures and gain in strength and weight.

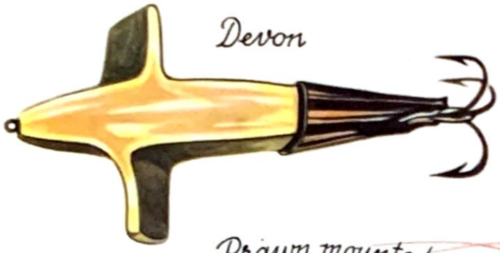
Certain of these smolts, after becoming salmon, and having spent a year in the sea, respond one day to the mysterious call of their native stream. When they return there, they are known as spring salmon, or grilse (4). Other smolts remain at sea for four years before returning to their native stream; these fish, and those who have already completed one or more such journeys, are called winter salmon (5).

Travelling at night, they reach the estuary, and move up the river in stages. In the lower reaches their progress is impeded by the activities of net fishermen; next they leap up and over any weirs or waterfalls they encounter en route. Having arrived at the spawning beds, they lay eggs (6) from which their young are born. This task having been completed, exhausted and emaciated, with their sides covered with scars, these salmon once more resume their journey to the sea. Their skin has reddened and softened and their lower jaw, now curved in the form of a beak, gives them quite an ugly appearance. They are then called kelt (7).

Those that have the strength and good fortune to reach the ocean recover their strength and splendour. The next year they will make the same journey.

The migration of salmon is an almost incredible adventure. The fish needs strength, tenacity and lots of luck to accomplish its destiny and escape the pitfalls on the way. When it comes from the sea into the river it has to face hazards of the locks, then the weirs and sluices which the fish, after many attempts, leaps in one powerful bound, bending in half on the surface of the water, or even in a single prodigious leap from the bottom of the stream. Higher still, in the narrow reaches and in mill streams, it makes the acquaintance of the poacher. The harpoon, the net, the trap, nothing is spared. And now all day long it is harried by the lures and tempting prey offered by the angler. The salmon has only to touch one of these and the next thing it knows it is on the end of a hook.

Capable of facing and overcoming all these hazards, the salmon, the dedicated voyager, is the noblest and most heroic fish in creation.


Devon

Spinner

Prawn mounted on hook

Salmon fly

"Silver Doctor"

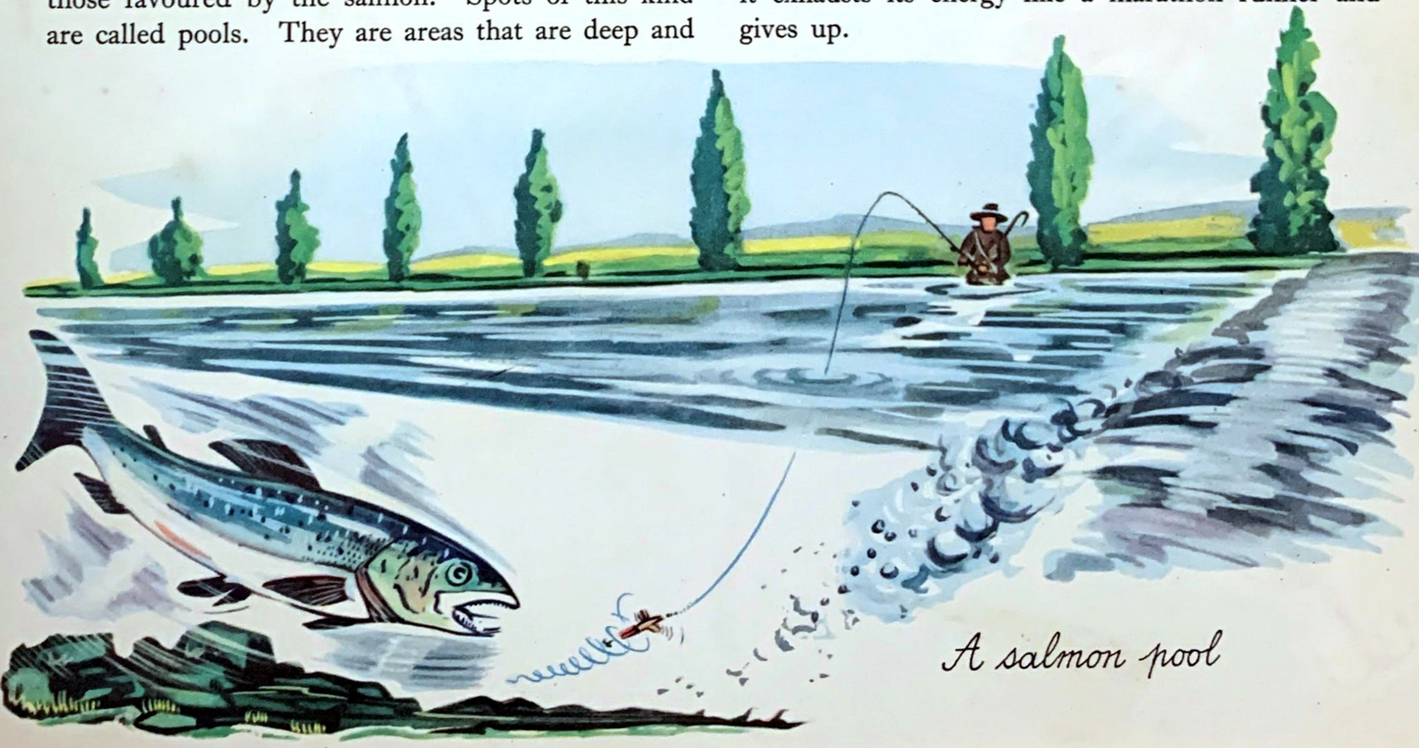
Salmon fishing

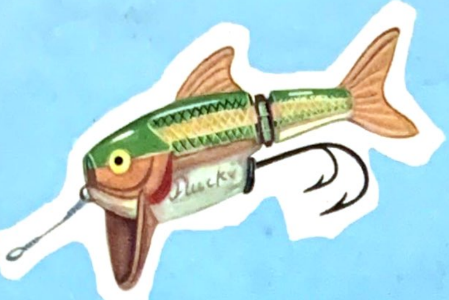
The man who fishes for salmon needs to be strong, tenacious and patient. The capture of so rare a fish represents a veritable exploit. We fish for salmon by trying to attract it, not by hunger, for it does not eat in freshwater, but by anger (it is not of gentle disposition), or by curiosity (it has to rely on its mouth for examining things). One can use a large Devon spinner; a waving or turning spoon; a boiled, pink shrimp fixed on the hook; or a large fly.

The angler casts his line and systematically covers the stream, concentrating on the spots known to be those favoured by the salmon. Spots of this kind are called pools. They are areas that are deep and fairly calm, followed by a waterfall or a rapid. In the course of its migration the salmon makes fairly long halts, often in spots of this kind, where it waits patiently for rising waters which will enable it to pursue its progress upstream.

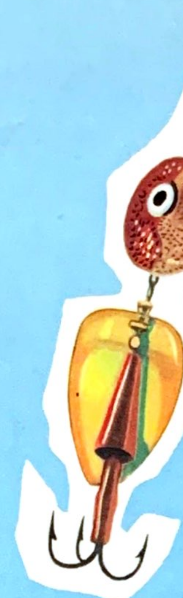
When it resumes its journey the small fry that come to annoy it need to beware. The salmon is nervous and bad-tempered; it turns with open jaws on the intruder. Thus, too, it throws itself upon a lure and the angler's prayers are answered.

But that is not all, for the lordly salmon will fight to the death. It goes hither and thither through the current with big movements of its head, leaps out of the water in an effort to break the line, to free itself from the hook. After struggling to and fro, it exhausts its energy like a marathon runner and gives up.

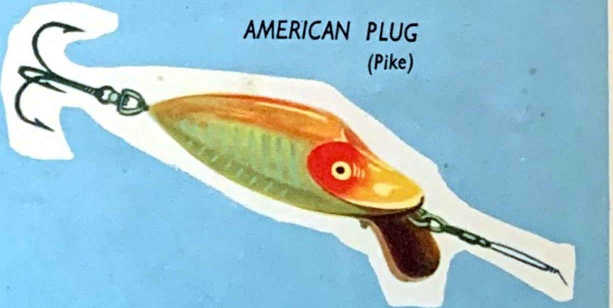

A salmon pool



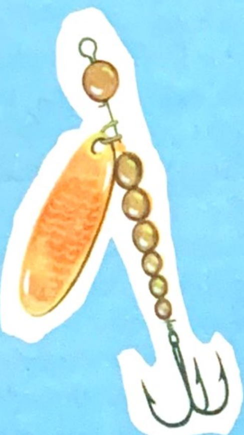
THE " PLUCKY ", A FISH IN RUBBER
(Trout, perch, pike)



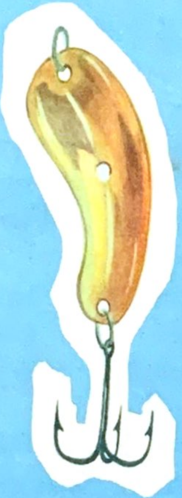
SPOON WITH LEAD PAINTED TO RESEMBLE THE HEAD OF A FISH
(Trout, perch)



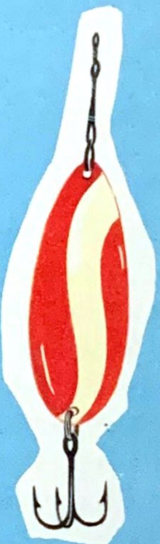
AMERICAN PLUG
(Pike)



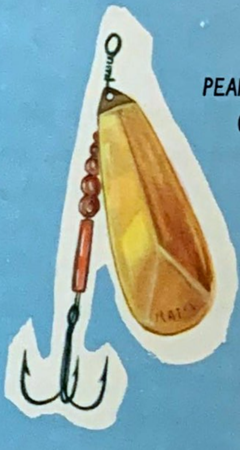
BEADED SPOON
(Trout, perch)



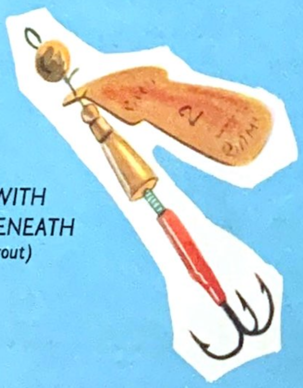
CURVED SPOON
(Pike, salmon)



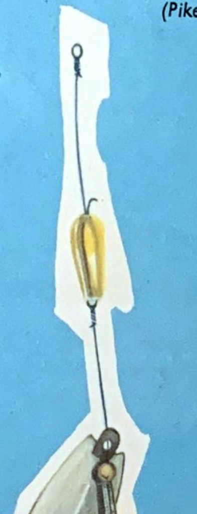
TWO-COLOUR SPOON
(Pike, salmon)



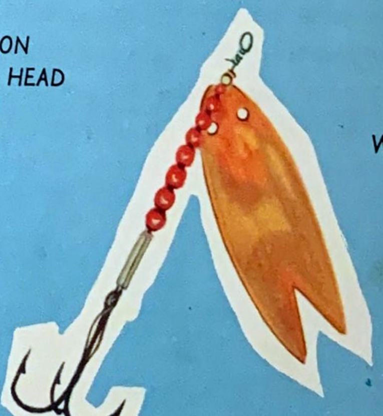
PEAR SPOON
(Pike)



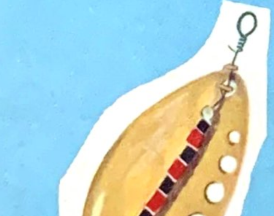
SPOON WITH WEIGHT BENEATH
(Perch, trout)



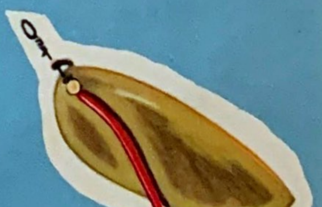
ANTI-KINK SPOON WITH LEAD AT HEAD
(Pike, perch)



WINGED SPOON
(Pike)

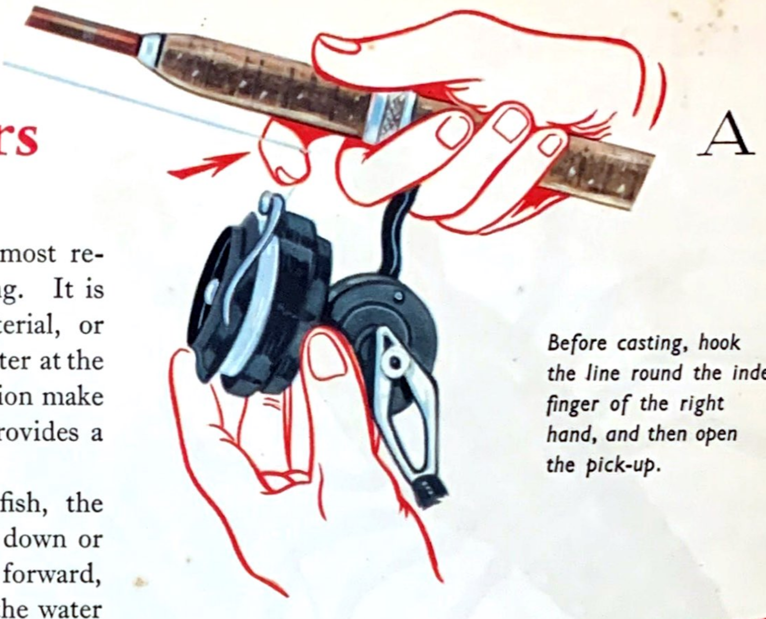


BUTTERFLY SPOON
(Pike, salmon)



ROTATING SPOON
(Pike)

Fishing with plugs and spinners



Before casting, hook the line round the index finger of the right hand, and then open the pick-up.

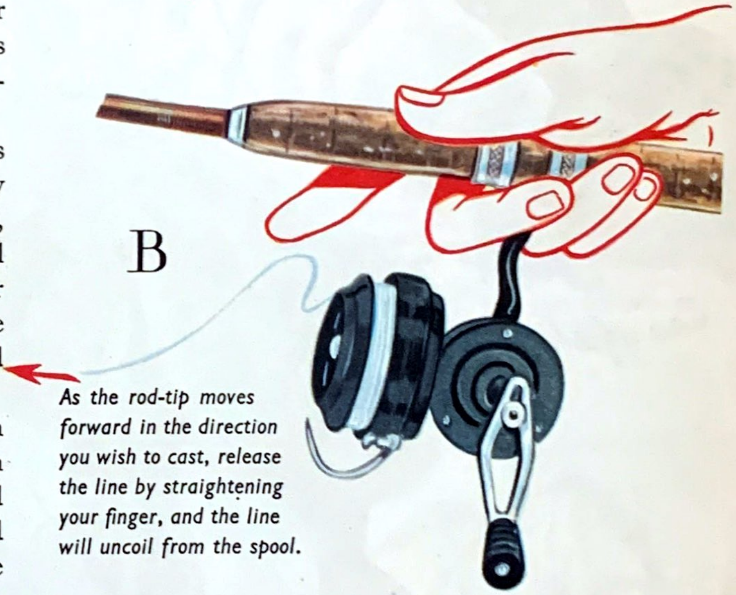
The artificial bait or lure is one of the most remarkable inventions in the realms of fishing. It is made of metal, of rubber, of plastic material, or even of wood. When pulled through the water at the end of a line, its fluttering action and coloration make it look like a real little fish of a kind that provides a tasty tit-bit for the trout, perch or pike.

To enhance its resemblance to a real fish, the artificial lure turns on itself, moves up and down or to and fro at the same time as it moves forward, pulled by the angler. When motionless in the water a lure resembles nothing. When moving it attracts the attention of the carnivore and arouses its covetousness.

What kind of equipment is needed for spinning, as this form of angling is called? The rod is a fairly flexible one, six to eight feet long, made of split-cane, fibre-glass or even metal. The reel, a fixed-spool one, contains about fifty yards of nylon, the latter having a breaking-strain of from eight to twelve pounds. The plug, spoon or spinner is attached to the end of the line.

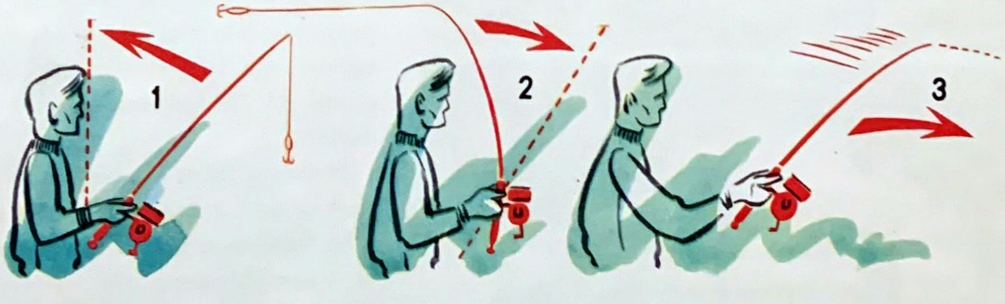
Although skill in the casting of the lure is soon acquired, the art of manœuvring the lure through the water, in such a way as to deceive the intended victim, comes only with experience. One can succeed by perseverance and a willingness to observe the customs and habits of the fish.

The pike, for example, tends to be lazy, so the spoon must be moved through the water fairly gently. Too great a speed means that it will pass by the fish before it has time to decide whether or not to pursue it.



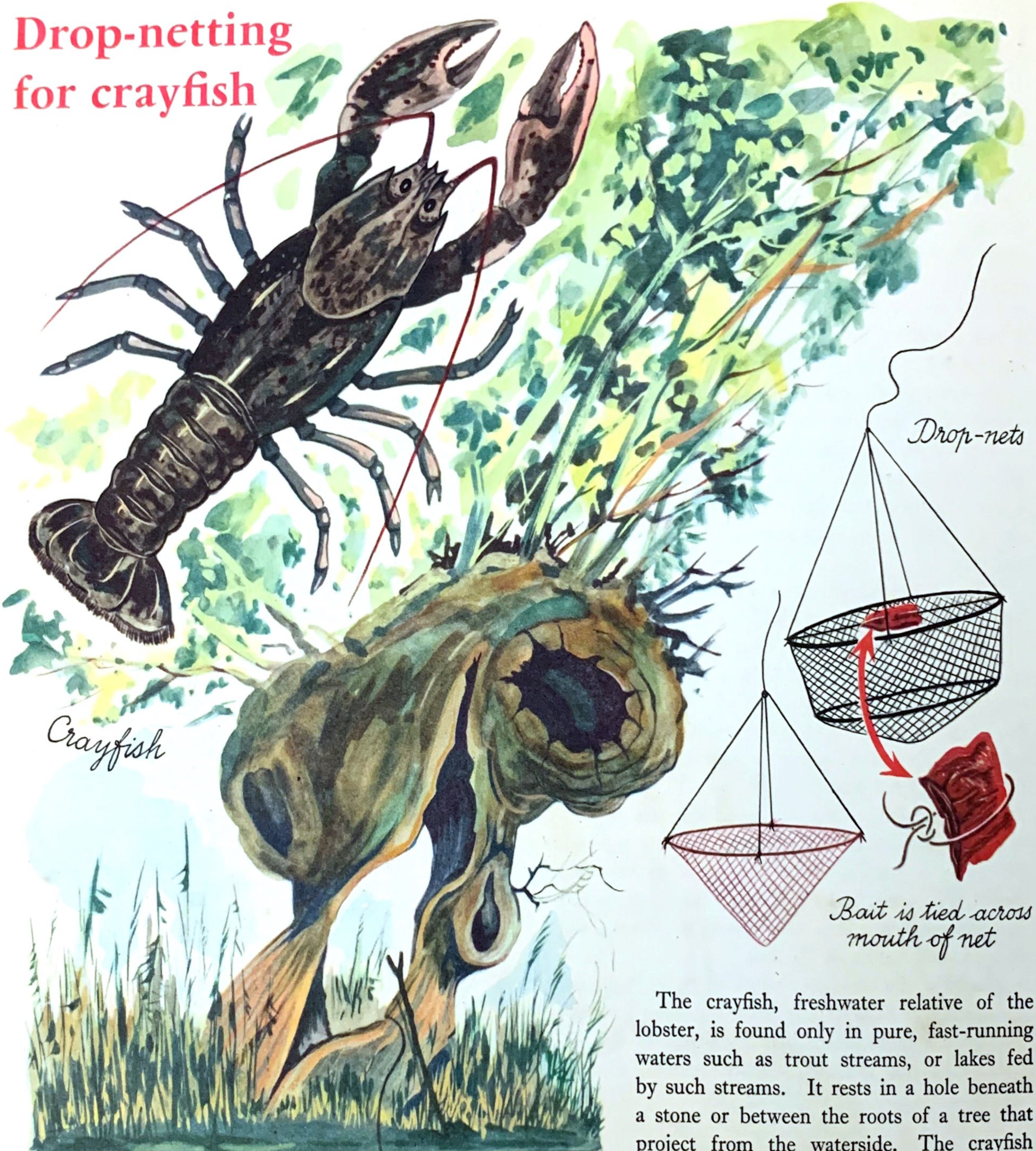
As the rod-tip moves forward in the direction you wish to cast, release the line by straightening your finger, and the line will uncoil from the spool.

To capture the lively and nervous trout, the lure should move at quite a speed and vibrate strongly. For the perch, a relatively small lure suffices, but it must be moved along in a somewhat erratic manner.



Stand naturally and tilt the rod forward towards where you wish to aim (1). Move the rod-tip smartly backwards and then forwards, firmly and smoothly, and without pausing (2). Arrest the movement of the rod momentarily, and release the line from your finger (3). Allow the rod-tip to be carried forward slightly by the impetus of your cast.

Drop-netting for crayfish


Crayfish
Drop-nets
Bait is tied across mouth of net

The crayfish, freshwater relative of the lobster, is found only in pure, fast-running waters such as trout streams, or lakes fed by such streams. It rests in a hole beneath a stone or between the roots of a tree that project from the waterside. The crayfish moves out to investigate the appetizing aroma of fresh meat, carried down by the current.

It comes from a nice juicy piece of mutton that is tied across the mouth of a drop-net. The fisherman places a number of such nets at intervals along the riverside and hauls them out from time to time, until he has captured a sufficient number for his requirements.

THE HOME AQUARIUM

Circular aquaria are unsatisfactory; the rectangular ones are much better. A small fish requires a gallon of water, a large one two gallons. The smallest aquarium should therefore measure not less than 8 inches high, 14 inches long and 10 inches wide.

In order that fish can live and thrive, an aquarium should contain water plants planted in the sand, arranged as shown in the diagram. Among the interesting plants for a heated aquarium may be mentioned *Cryptocoryne*, *Ceratophyllum* and *Ludwigia*.

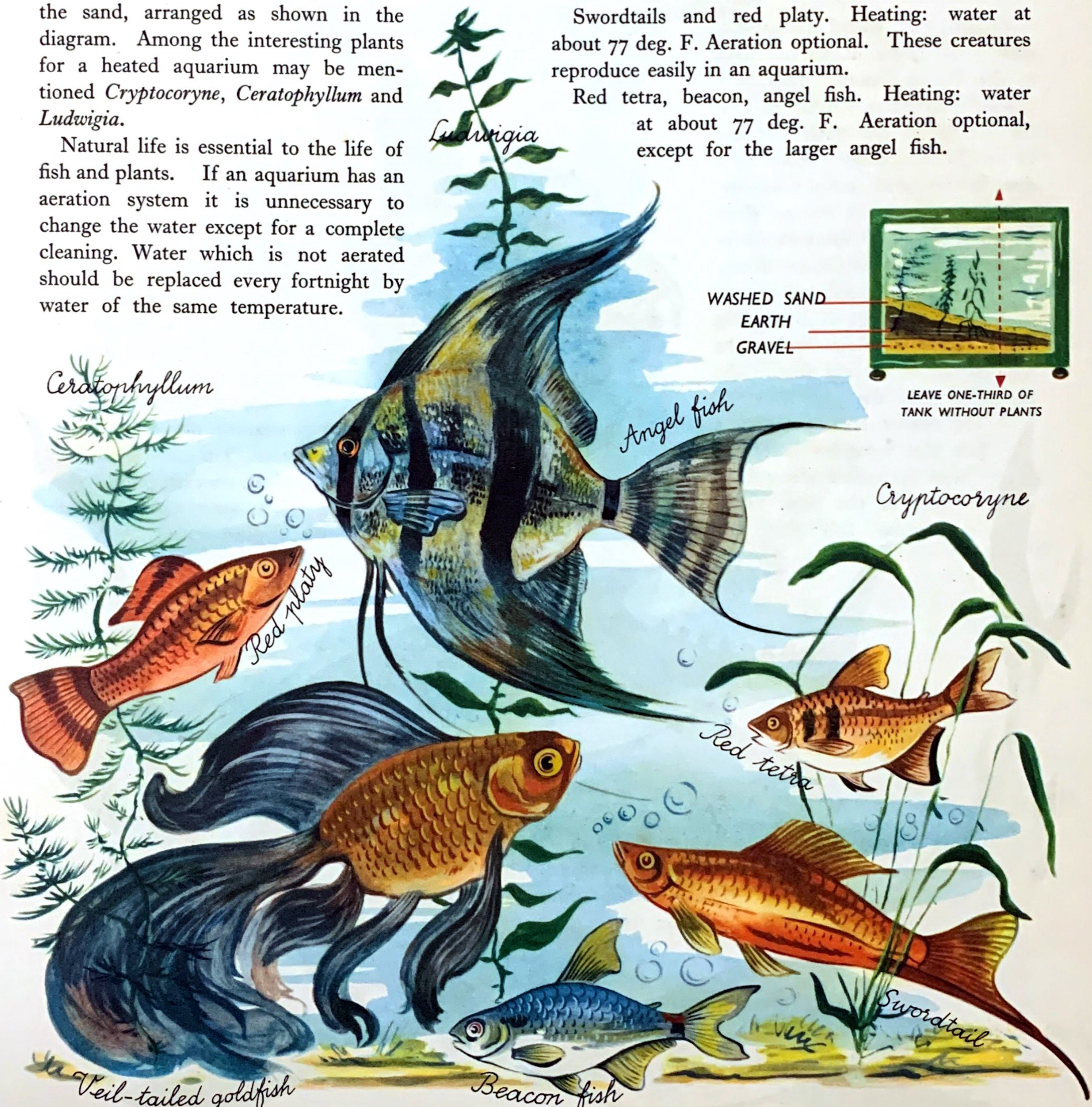
Natural life is essential to the life of fish and plants. If an aquarium has an aeration system it is unnecessary to change the water except for a complete cleaning. Water which is not aerated should be replaced every fortnight by water of the same temperature.

Fish have need of living food (larvae, daphnias) every day. Powdered food should be avoided. It can be given from time to time if live food is lacking.

Here are fish that can be grouped together: the veil-tailed and the telescope-eyed goldfish. For these fish, no heating: water 59-68 deg. Fahrenheit. Aeration is useful.

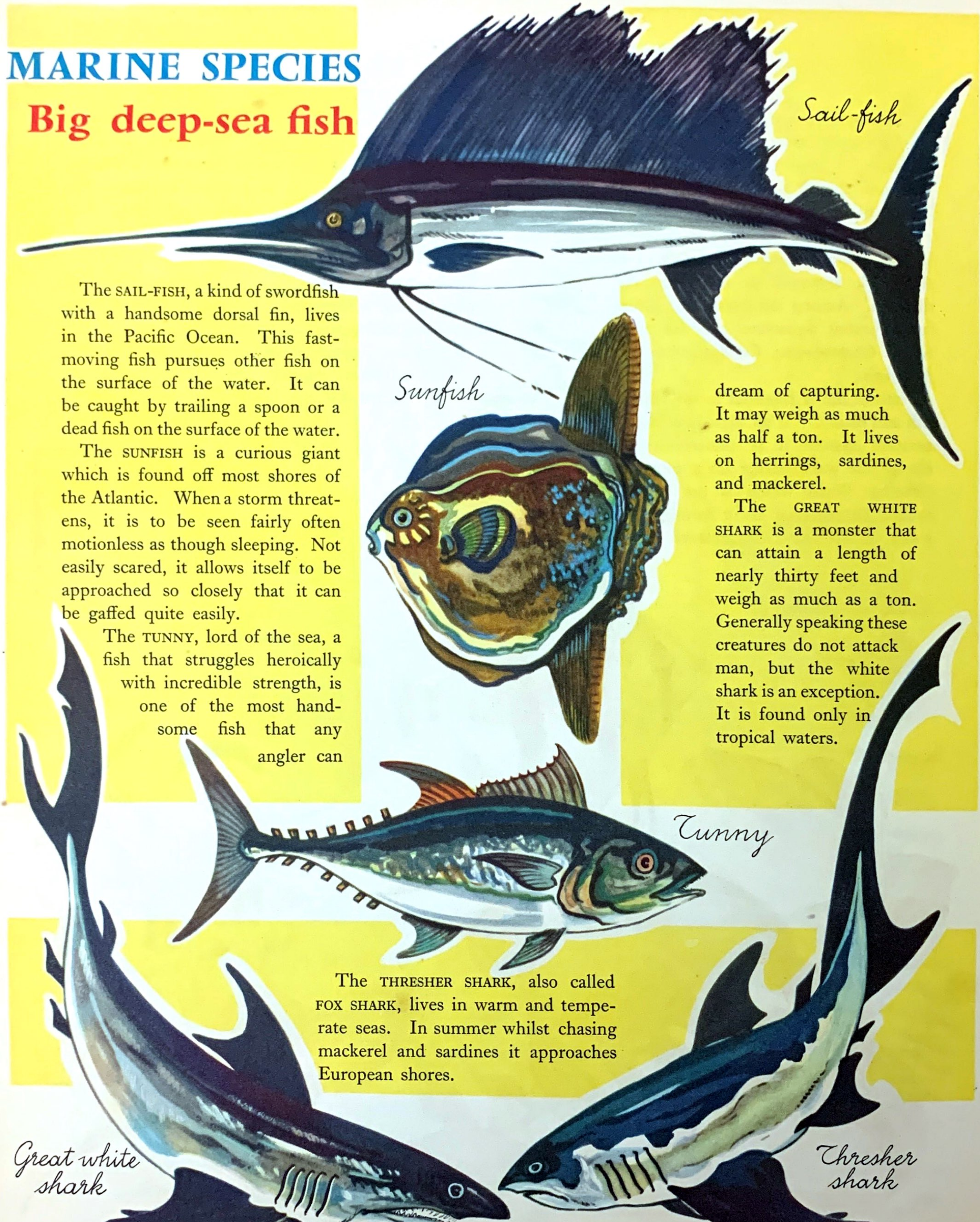
Swordtails and red platy. Heating: water at about 77 deg. F. Aeration optional. These creatures reproduce easily in an aquarium.

Red tetra, beacon, angel fish. Heating: water at about 77 deg. F. Aeration optional, except for the larger angel fish.



MARINE SPECIES

Big deep-sea fish



The SAIL-FISH, a kind of swordfish with a handsome dorsal fin, lives in the Pacific Ocean. This fast-moving fish pursues other fish on the surface of the water. It can be caught by trailing a spoon or a dead fish on the surface of the water.

The SUNFISH is a curious giant which is found off most shores of the Atlantic. When a storm threatens, it is to be seen fairly often motionless as though sleeping. Not easily scared, it allows itself to be approached so closely that it can be gaffed quite easily.

The TUNNY, lord of the sea, a fish that struggles heroically with incredible strength, is one of the most handsome fish that any angler can dream of capturing. It may weigh as much as half a ton. It lives on herrings, sardines, and mackerel.

The GREAT WHITE SHARK is a monster that can attain a length of nearly thirty feet and weigh as much as a ton. Generally speaking these creatures do not attack man, but the white shark is an exception. It is found only in tropical waters.

The THRESHER SHARK, also called FOX SHARK, lives in warm and temperate seas. In summer whilst chasing mackerel and sardines it approaches European shores.

Tarpon

Bonito

Basking shark

The **TARPON**, a silvery fish, lives in the estuaries of some of the rivers of tropical Africa and America. It is nearly seven feet long and is a relentless hunter. In the company of other tarpons it attacks mullet unceasingly. The sea literally boils. If a baited line is then thrown out the haul will be a big one. But the silver king sells his life dearly. His speciality is to leap out of the water in prodigious bounds.

The **BASKING SHARK**, very widespread in all temperate seas, may be as much as 30 feet long. Despite its size it feeds upon relatively small marine creatures.

The **HAMMER-HEAD SHARK** sometimes weighs three-quarters of a ton. This feeds on little fishes, and is found in warm seas.

Hammer-head shark

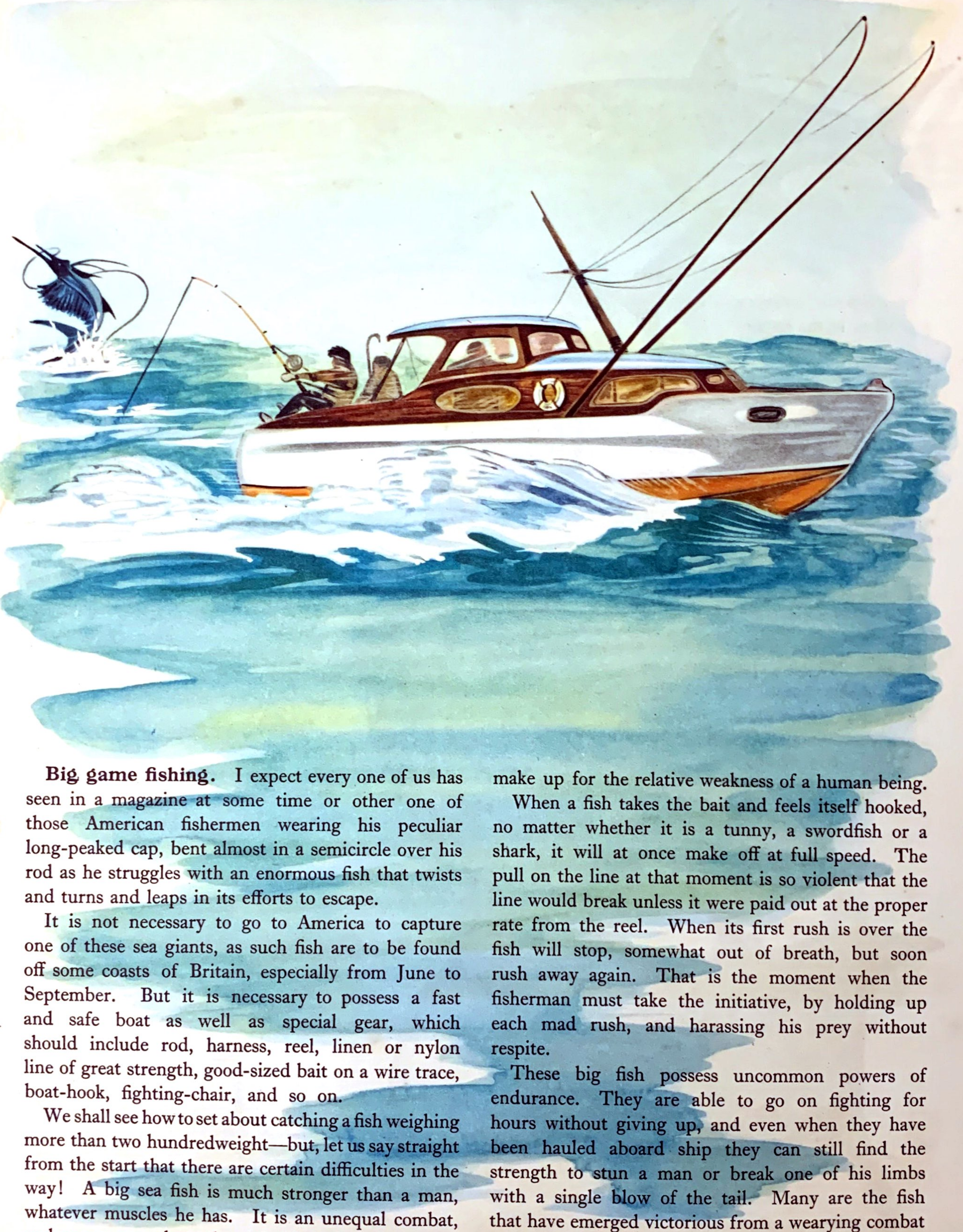
The **BONITO**, a near relation of the tunny, is only of moderate size, but is notable for its beauty and strength. It hunts sprats and sardines. The angler can succeed in capturing it by trailing a spoon or a hook adorned with coloured feathers, but it rarely appears round the coast of Britain.

The **HORNED RAY** or, more correctly, the **MANTA**, is the largest ray in the world. Specimens that exceed twenty feet in width and weigh $1\frac{1}{2}$ tons are to be found in tropical seas. In spite of its forbidding appearance the manta is quite inoffensive.

The **LONG-NOSED SKATE** is one of the largest of the rays that can be caught on a line, though this is fairly difficult as it is usually found only in deep waters some miles from the coast.

Horned ray, or manta

Long-nosed skate



Big game fishing. I expect every one of us has seen in a magazine at some time or other one of those American fishermen wearing his peculiar long-peaked cap, bent almost in a semicircle over his rod as he struggles with an enormous fish that twists and turns and leaps in its efforts to escape.

It is not necessary to go to America to capture one of these sea giants, as such fish are to be found off some coasts of Britain, especially from June to September. But it is necessary to possess a fast and safe boat as well as special gear, which should include rod, harness, reel, linen or nylon line of great strength, good-sized bait on a wire trace, boat-hook, fighting-chair, and so on.

We shall see how to set about catching a fish weighing more than two hundredweight—but, let us say straight from the start that there are certain difficulties in the way! A big sea fish is much stronger than a man, whatever muscles he has. It is an unequal combat, and so we must have the right kind of equipment to make up for the relative weakness of a human being.

When a fish takes the bait and feels itself hooked, no matter whether it is a tunny, a swordfish or a shark, it will at once make off at full speed. The pull on the line at that moment is so violent that the line would break unless it were paid out at the proper rate from the reel. When its first rush is over the fish will stop, somewhat out of breath, but soon rush away again. That is the moment when the fisherman must take the initiative, by holding up each mad rush, and harassing his prey without respite.

These big fish possess uncommon powers of endurance. They are able to go on fighting for hours without giving up, and even when they have been hauled aboard ship they can still find the strength to stun a man or break one of his limbs with a single blow of the tail. Many are the fish that have emerged victorious from a wearying combat that has lasted several hours.

Baiting with small fish. The big sea fish are mostly flesh-eaters. By means of their sensitive powers of smell they can detect from afar any prey that can be caught without too much trouble, such as a dead fish, for example. Fishing with such bait relies on this factor.

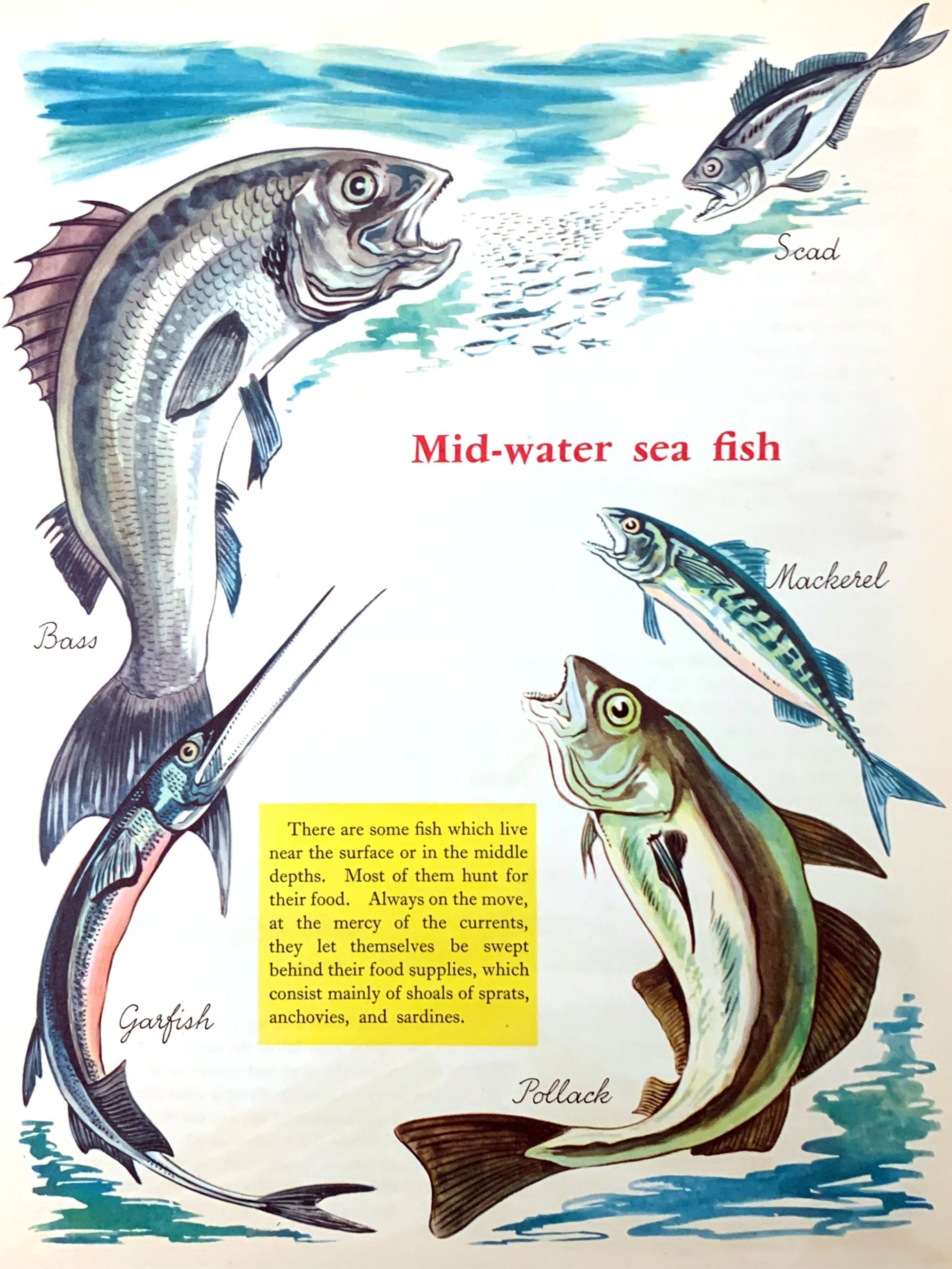
From his boat hove-to in the open sea, the fisherman casts into the water a line baited with a herring, mackerel or sardine, while someone else scatters tasty morsels of chopped-up fish about the sea. This is carried by the current and attracts the big fish, who come and seize the baited hook.

Fishing near a drift net. When seamen fish with a net, for sardine, mackerel or herring, many fish escape, injured or killed, and drift with the current. This prey attracts the flesh-eaters, who often follow the shoals of fish almost into the fishermen's net. That is the very moment when you should let them have your line baited with a good fresh fish, for you have every chance of success. The big creatures fight among themselves for this easy prey which they soon snap up; in the quest to satisfy their appetite they will attack your bait, with results fatal to themselves.

Fishing with a drag-line. This method is used with a boat that is on the move. The line is paid out behind the boat and carries at its extreme end a lure, a spoon, a large fly or a dead fish.

The big hunters in the sea are on the watch, ready for the chase. As soon as they see this strange creature which twists and turns and gleams with light, they are after it, and when one of them bites on it the hook strikes into its mouth.

Mid-water sea fish



There are some fish which live near the surface or in the middle depths. Most of them hunt for their food. Always on the move, at the mercy of the currents, they let themselves be swept behind their food supplies, which consist mainly of shoals of sprats, anchovies, and sardines.

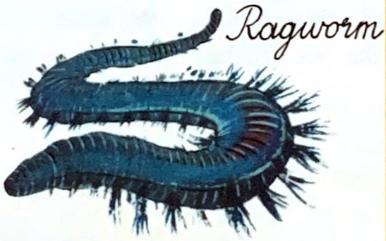
The BASS, that suspicious yet vigorous flesh-eater, lives near the rocky or sandy coasts. As the tide comes in, it hunts little sprats, sand eels, shrimps and other creatures along the shore. Bass are hooked mainly at high tide.

The GARFISH, a strange fish with scales and green bones, is known by its long beak which is just like that of certain birds. In the company of mackerel it hunts all sorts of little fish similar to the anchovy and the sardine. The garfish is often caught on mackerel skin bait.

The SCAD is a close relative of the mackerel, and is always hungry. It bites greedily at mackerel skin. But the scad, with its spiny fins, is full of bones and is not a favourite for the table.

The MACKEREL comes inshore in enormous shoals when summer is at its height. It spends the whole time in hunting every kind of living prey; worms, tiny fish, shrimps. Fishermen catch large numbers of mackerel, either by trailing a spoon or a hook baited with mackerel skin.

The POLLACK, a fine fish, prefers rocky coasts. It hunts little fish and shrimps in the middle depths among the reefs and amid beds of seaweed. It can be fished with a line in the currents or by means of a drag-line with a rubber eel.



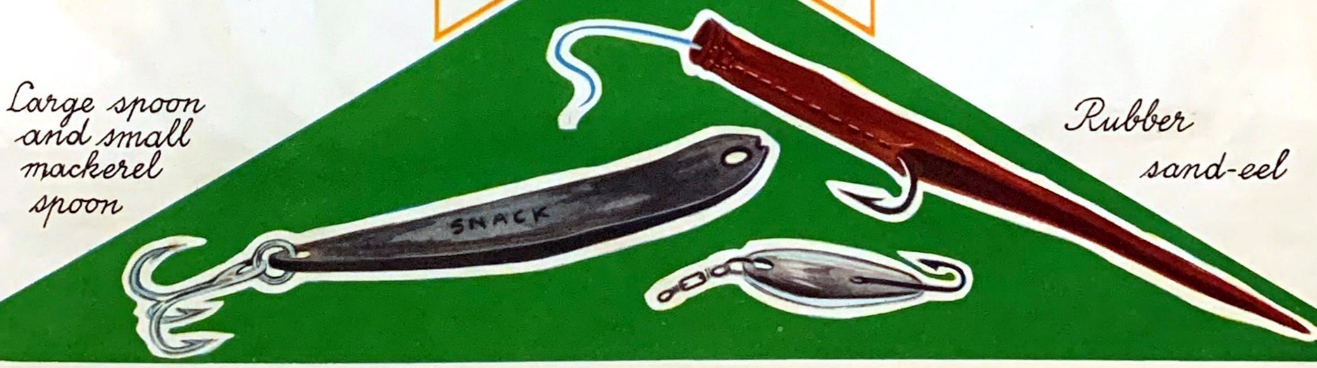
Food and bait. The fish near the surface feed on sprats, anchovies, sardines and shrimps, sand worms and big sea worms, too. So fishermen make use of baits or lures which look like them, or perhaps a little spoon or a rubber eel.

One of the best baits for sea fishing is a piece of mackerel skin to which some of the flesh still adheres. This is trailed through the water. Sea fish love it and even mackerel are not averse to eating the skin of their own kind. To attract these fish, it is best to bait the water around the boat with crushed shellfish and pieces of sardine and mackerel.

Worms are probably the most popular bait among anglers who fish from the shore or from a pier. The two main kinds are ragworm and lugworm.

The ragworm is easily identified by the row of short, fringe-like tentacles which project along each side of its body, the latter being mainly reddish in colour.

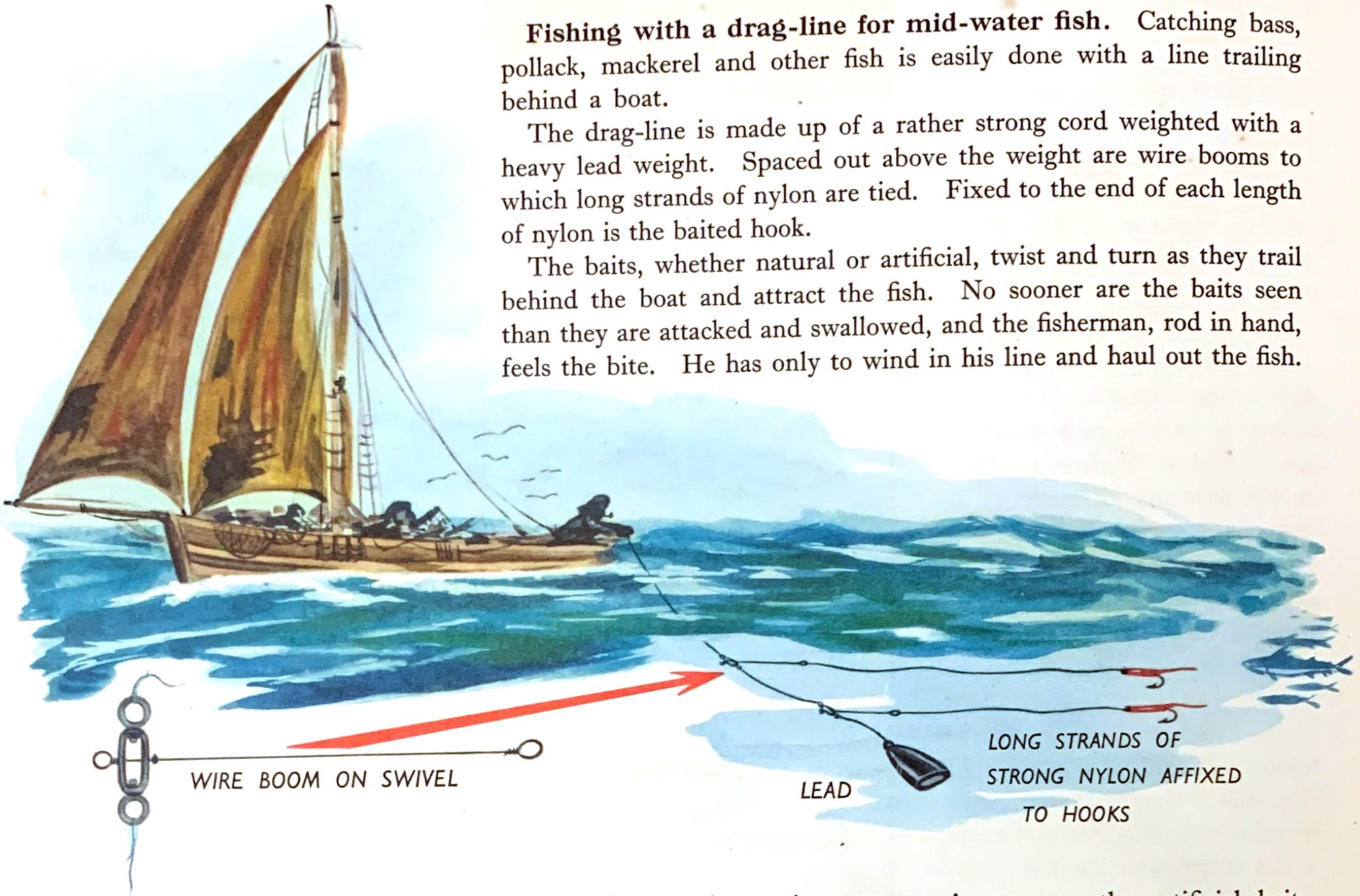
Lugworms, fat, bristly and almost black, are found mostly in estuaries and rather muddy foreshores at low tide. Small, soft crabs, called " peelers ", also make an effective bait.


Large spoon and small mackerel spoon
SNACK
Rubber sand-eel

Fishing with a drag-line for mid-water fish. Catching bass, pollack, mackerel and other fish is easily done with a line trailing behind a boat.

The drag-line is made up of a rather strong cord weighted with a heavy lead weight. Spaced out above the weight are wire booms to which long strands of nylon are tied. Fixed to the end of each length of nylon is the baited hook.

The baits, whether natural or artificial, twist and turn as they trail behind the boat and attract the fish. No sooner are the baits seen than they are attacked and swallowed, and the fisherman, rod in hand, feels the bite. He has only to wind in his line and haul out the fish.


WIRE BOOM ON SWIVEL
LEAD
LONG STRANDS OF STRONG NYLON AFFIXED TO HOOKS

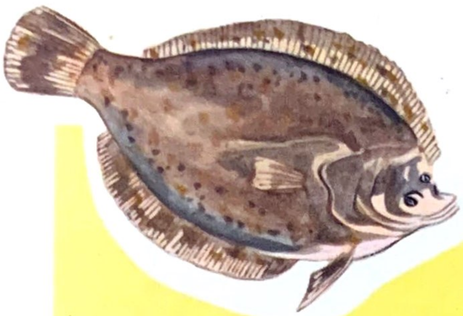
Fishing from the rocks. On rocky coasts, bass and pollack are easily caught by casting from the rocks. Fishing is done as the tide comes in, preferably on days when there is enough wind blowing to whip up the waves.

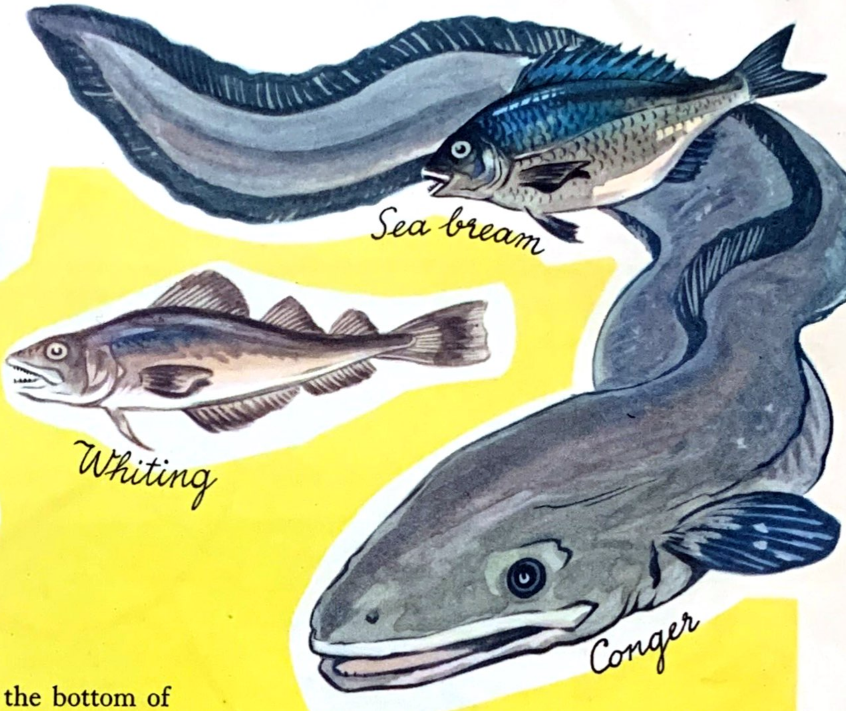
To the end of his line the fisherman attaches a bright spoon or a rubber eel, weighted with a small lead. He casts his line far out into the sea among the surging waters. As soon as the artificial bait is in the water the fisherman pulls it along fairly quickly to make it look like a real little fish, which the bass and pollack attack.

In summer when it is fine, it often happens that the mackerel come near enough to be caught from the coast. To attract them the angler uses a small silvery spoon at the end of his line.

At the bottom of the sea

Flounder





Whiting

Pout-whiting

Here are some fish that live at the bottom of the sea not far from the coasts.

The FLOUNDER, one of the flatfish, lives on the sandy or muddy bottom of the sea. In winter it makes for the open sea, in spring and summer it comes quite close inshore.

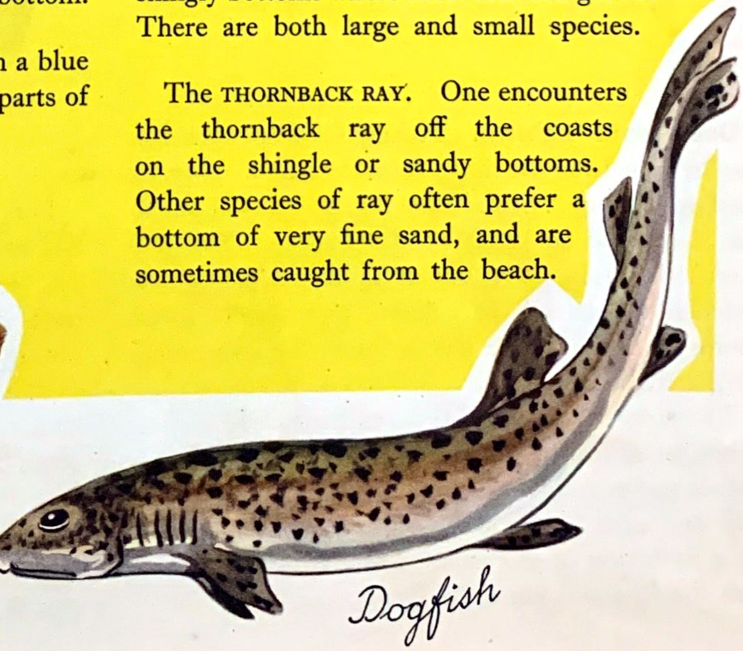
The WHITING and the POUT-WHITING are two very similar fishes. The whiting favours the sandy bottoms or sea beds covered with gravel or mud. The pout prefers a rocky bottom.

The SEA BREAM is a handsome fish with a blue back and silver scales. It lives in those parts of the sea floor that are rocky or muddy, and approaches the coast in summer.

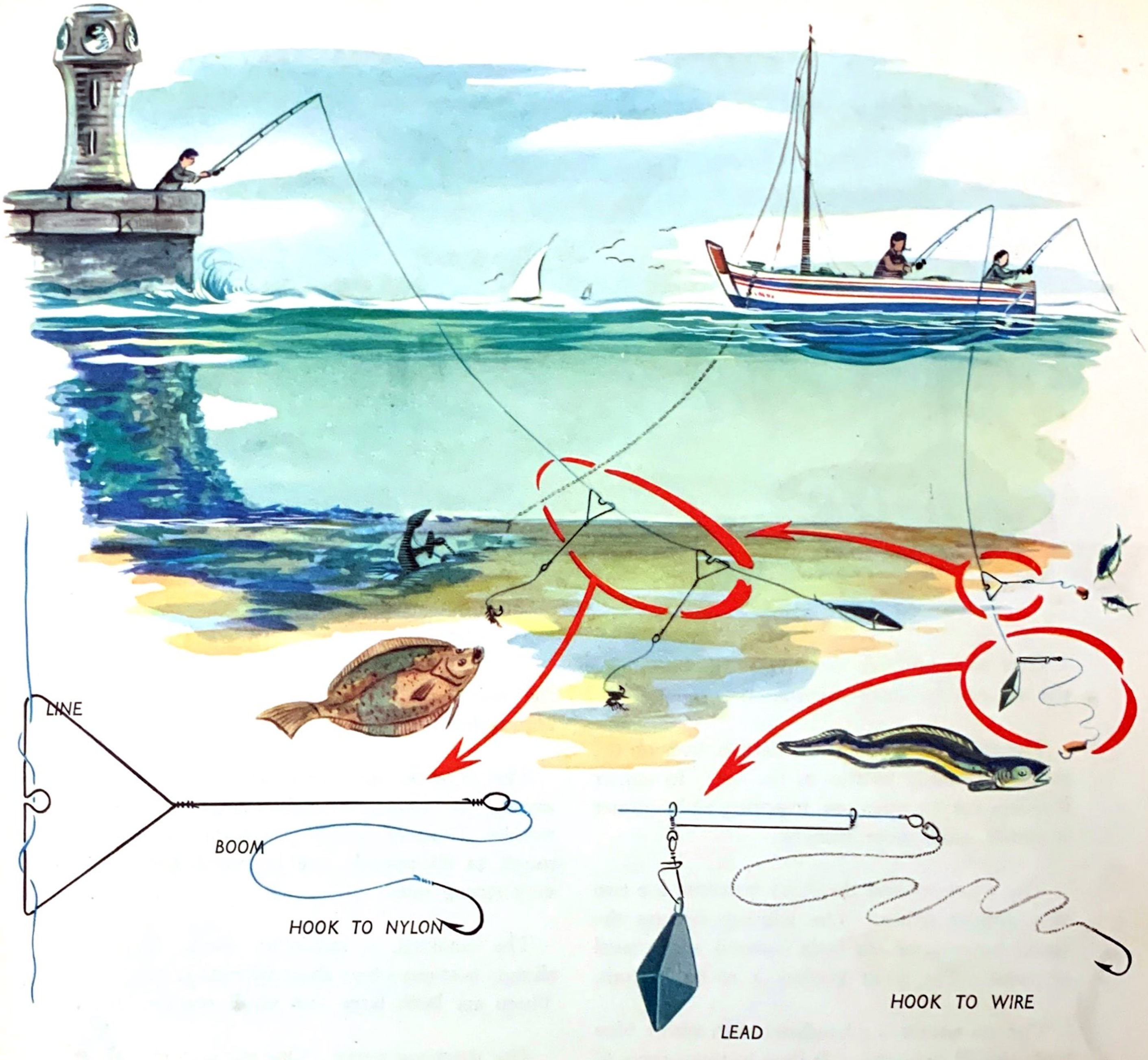
The CONGER, the enormous sea eel, thrives among the underwater rocks, large stones and wrecks. Congers, which sometimes weigh as much as 80 pounds, are powerful fish with very strong jaws.

The DOGFISH, a miniature shark, likes shingly bottoms where short seaweed grows. There are both large and small species.

The THORNBACK RAY. One encounters the thornback ray off the coasts on the shingle or sandy bottoms. Other species of ray often prefer a bottom of very fine sand, and are sometimes caught from the beach.



Dogfish



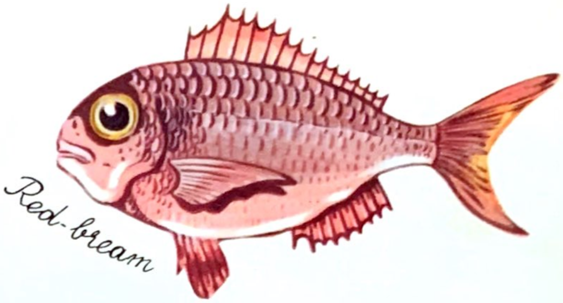
Deep-water fishing. Fishing for deep-water fish may be done from the shore, from the end of a pier, or more easily from a boat. The line is cast well out so that the baited hooks lay on the sea bed. The line is of fairly strong nylon (about 24 lb breaking strain) ended by a lead weight. Above this weight, metal booms from which the baited hooks are suspended, are secured to the line.

To catch small fish, size 1 sea-hooks will suffice. When, after casting out the line, the lead weight has anchored the bait on the sea bed, you tighten the line and wait for a bite. This will be signalled by a twitching of the line. That is the moment to jerk the line and hook the fish.

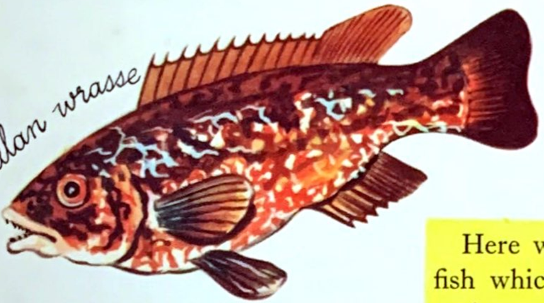
For catching big fish, such as conger, dogfish and ray, you need a stronger line and a larger hook: the latter is usually mounted on wire because the teeth of certain fish are quite capable of snapping through nylon.

The drawing shows how the weight, booms and hooks are set up. The lead is attached so that it offers the minimum initial resistance to a taking fish. The fish swallows confidently without suspecting anything, causing the line to twitch and giving you the signal to strike the hook into its mouth.

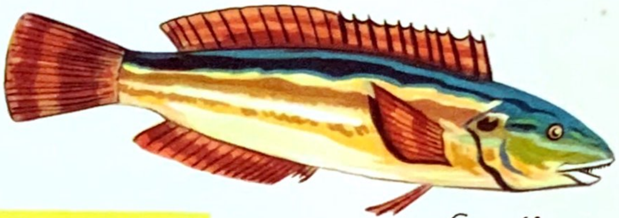
Fish that haunt the rocks



Red-bream



Ballan wrasse



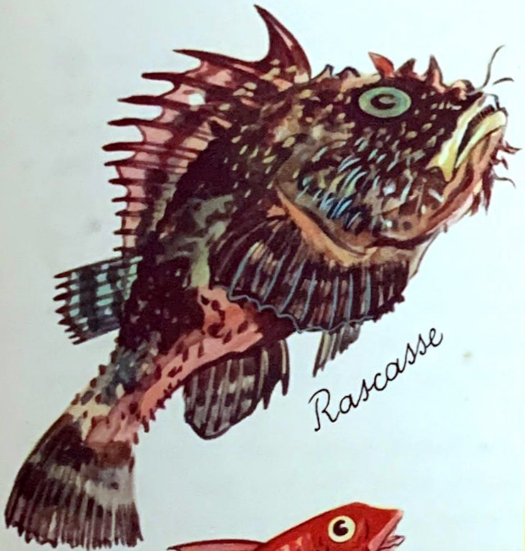
Girelle

Here we have nine species of fish which dwell among the rocks and reefs. The GIRELLE, RASCASSE, PIRONNEAU and BLACK-TAILED BREAM are found in the Mediterranean. The large and powerful MORAY EEL sometimes visits the seas around Britain in the summer.

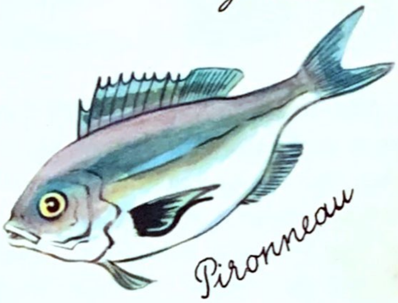
The RED BREAM, BALLAN WRASSE, RED MULLET, and the little GOBY are frequently caught around the more southerly coasts of Britain.

The goby, with its toad-like head, is an amusing little creature. Along rocky coasts we often find it in the pools left by the receding tide, where it hides beneath stones or crags.

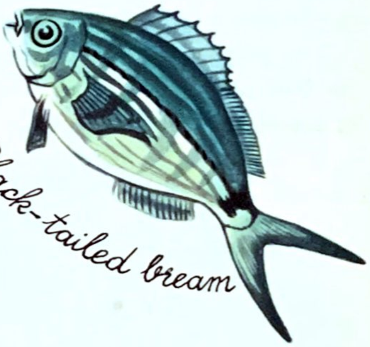
Bait a line with a piece of worm or shellfish and dangle it in a rock-pool close to the hole where a goby hides.



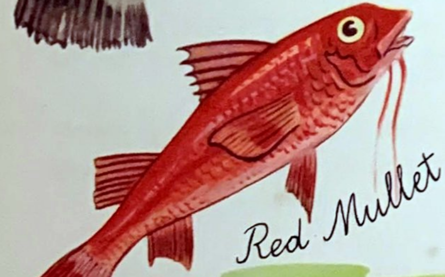
Rascasse



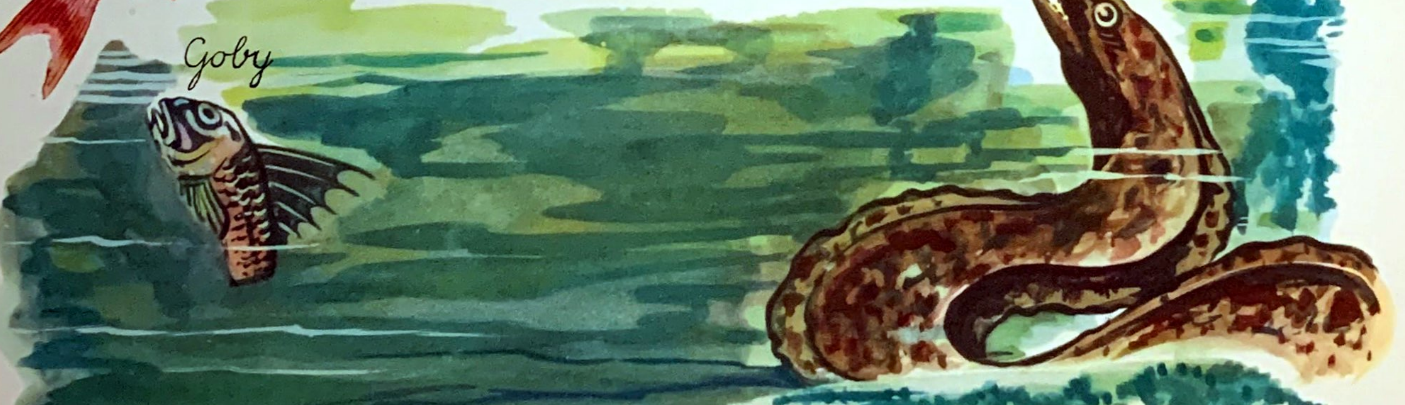
Pironneau



Black-tailed bream

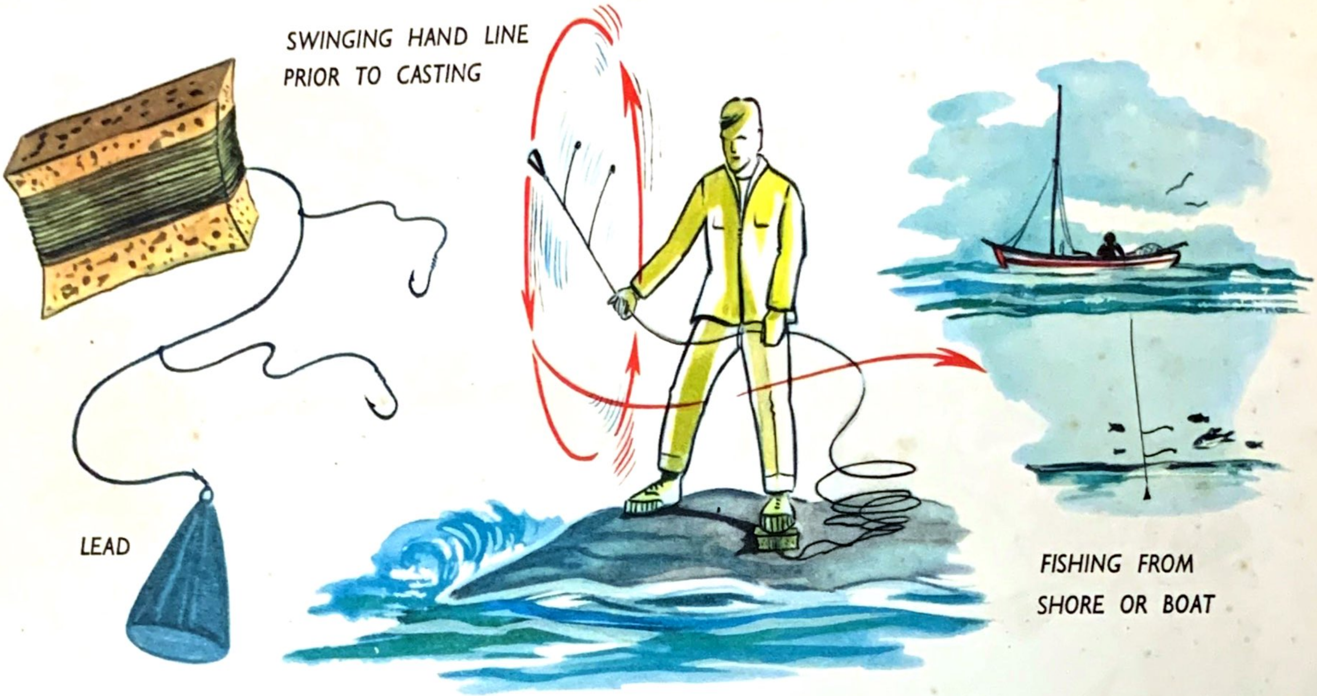


Red Mullet



Goby

Moray eel

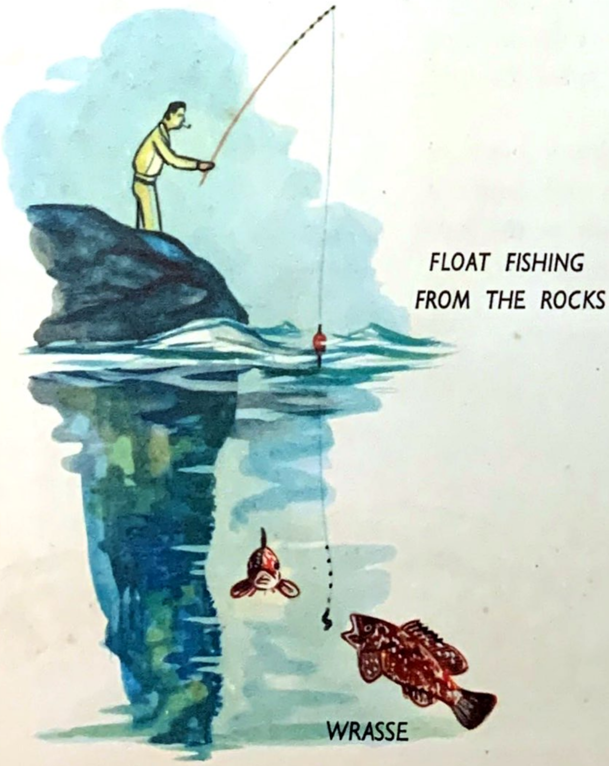

SWINGING HAND LINE PRIOR TO CASTING
LEAD
FISHING FROM SHORE OR BOAT

Fishing from rocks with a hand line. To fish from rocks using only a simple hand line, is easier than one might imagine. The sketch shows the line wound round a piece of cork. Attached to the end of the line is a lead weight of four to six ounces. Above the weight are fixed two short pieces of line, each with a small hook. The hand line can be used as effectively from the rocks as from a boat.

The picture above shows an angler about to cast his line out into the sea. He grips the line firmly in his right hand, swings the lead weight round and round, and at the appropriate moment releases the line so that it flies out into the water. Note two things. Firstly, that he grasps the line well above the hooks so that they will not catch upon his flesh or clothing as they swing round. Secondly, that he uncoils nearly all the line from the cork, but keeps one foot upon the cork to anchor that end of the line. Any of the following are tasty morsels with which to lure the fish to your hooks: lugworm, ragworm, soft crab, the flesh from a mussel, or a piece of fish.

As soon as the baited hooks have been cast into the sea, the angler holds the line taut. He feels the line twitch when a fish takes the bait, gives the line a sharp tug, and hauls in the hooked fish as quickly as possible.

When hand-lining from a boat, the line is simply lowered into the water until the lead weight rests on the bottom.


FLOAT FISHING FROM THE ROCKS
WRASSE

Float-fishing from the rocks. It is also possible to fish from rocky places, using a rod and line with float tackle. The float needs to be of a size suitable to support the amount of lead-shot required on the line.

Among the rocks swim wrasse, pout whiting, bass, and sometimes mullet will forage for whatever titbits they can find. Keep your eyes constantly upon the float and jerk the line immediately the float goes under, for a fish is then nibbling at your bait.

One word of warning. Ensure that you have a good foothold when fishing from the rocks, and be watchful lest a rising tide cuts off your return to the shore.

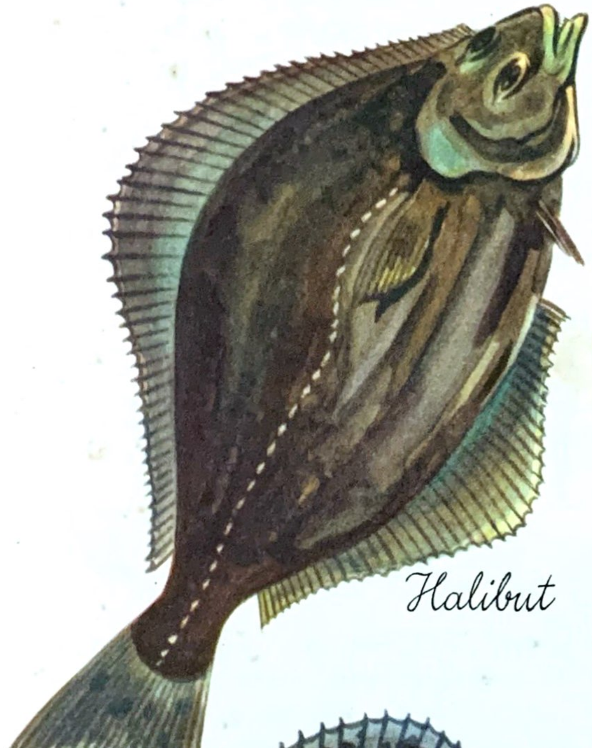
Flat-bodied fish

Sole

Dab

Flounder

Plaice

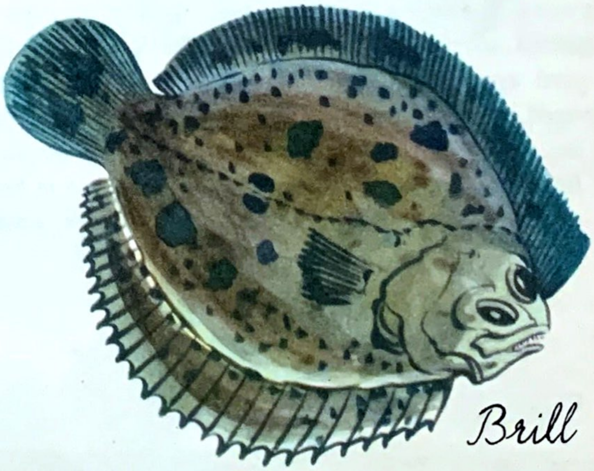


Halibut

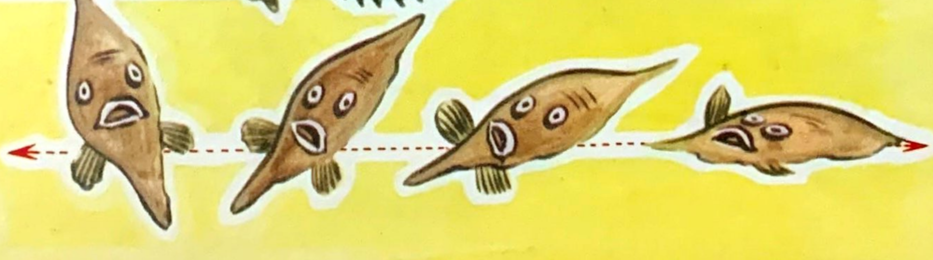
One of the best known flat fish is the SOLE. White on one side, sand-coloured on the other, its thinness is quite remarkable. The fish which is at once the largest of the species and the least caught, is the HALIBUT. Of quite impressive size, it often weighs more than a hundredweight.

The common flat fish around Britain's coast, such as the FLOUNDER, PLAICE and DAB, are of more modest proportions. Mention may also be made of the TURBOT and the BRILL, both of which have an almost circular shape.

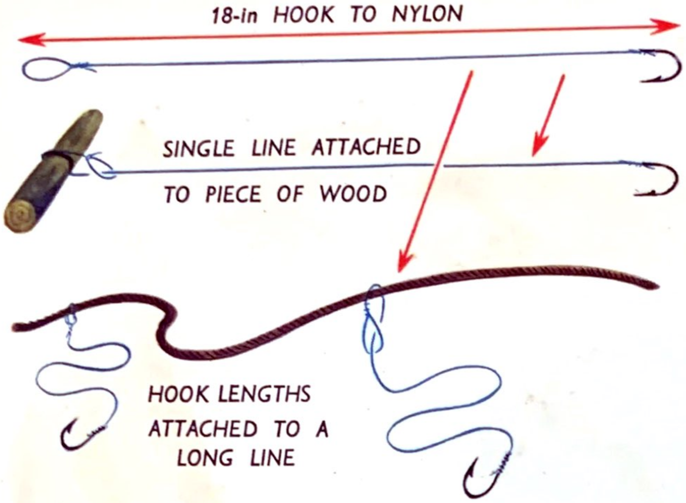
Turbot



Brill



Flat fish are born just like other fish, but soon after a remarkable phenomenon occurs. One day they rest upon the sea bed and gradually tilt over sideways. As they do so, the eye on the underside slowly moves its position little by little until it creeps round the head of the fish, and remains adjacent to the other eye.



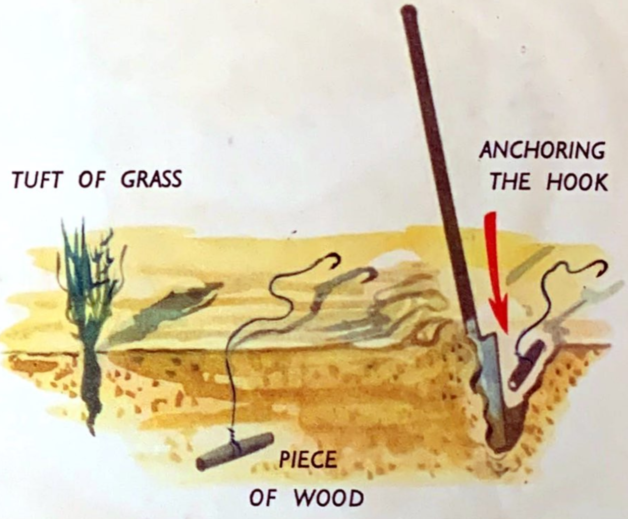
Fishing for flat fish with pegged lines. Fishing for flat fish on sandy beaches, using lines pegged down to the bottom, is very interesting and amusing. But this method of fishing can be used only on remote and secluded beaches, where there is no danger of bathers injuring their feet on the baited hooks.

There are two kinds of lines: the individual line and the long line with several hooks. The first mentioned consists of a shortish length of nylon about 18 inches long, with a hook at one end, the other end being attached to a piece of wood. As shown in the sketch, the short stick is embedded in the sand at roughly the same depth as the blade of a spade. Then the hook is baited with a piece of lugworm. During low tide, ten, twenty or even a hundred of these single lines are laid out roughly a yard apart. As the tide comes in the lines are covered, then when the tide ebbs again we can go to see what we have caught. In order to be sure of finding them from one tide to the next, it is best to mark the spot with some kind of landmark, a tuft of grass or a stick.

The long line is stretched out on the sand at low tide, with the help of two sticks placed one at each end. Then the hooks are baited, and all that remains is to inspect the line after the tide has receded again.

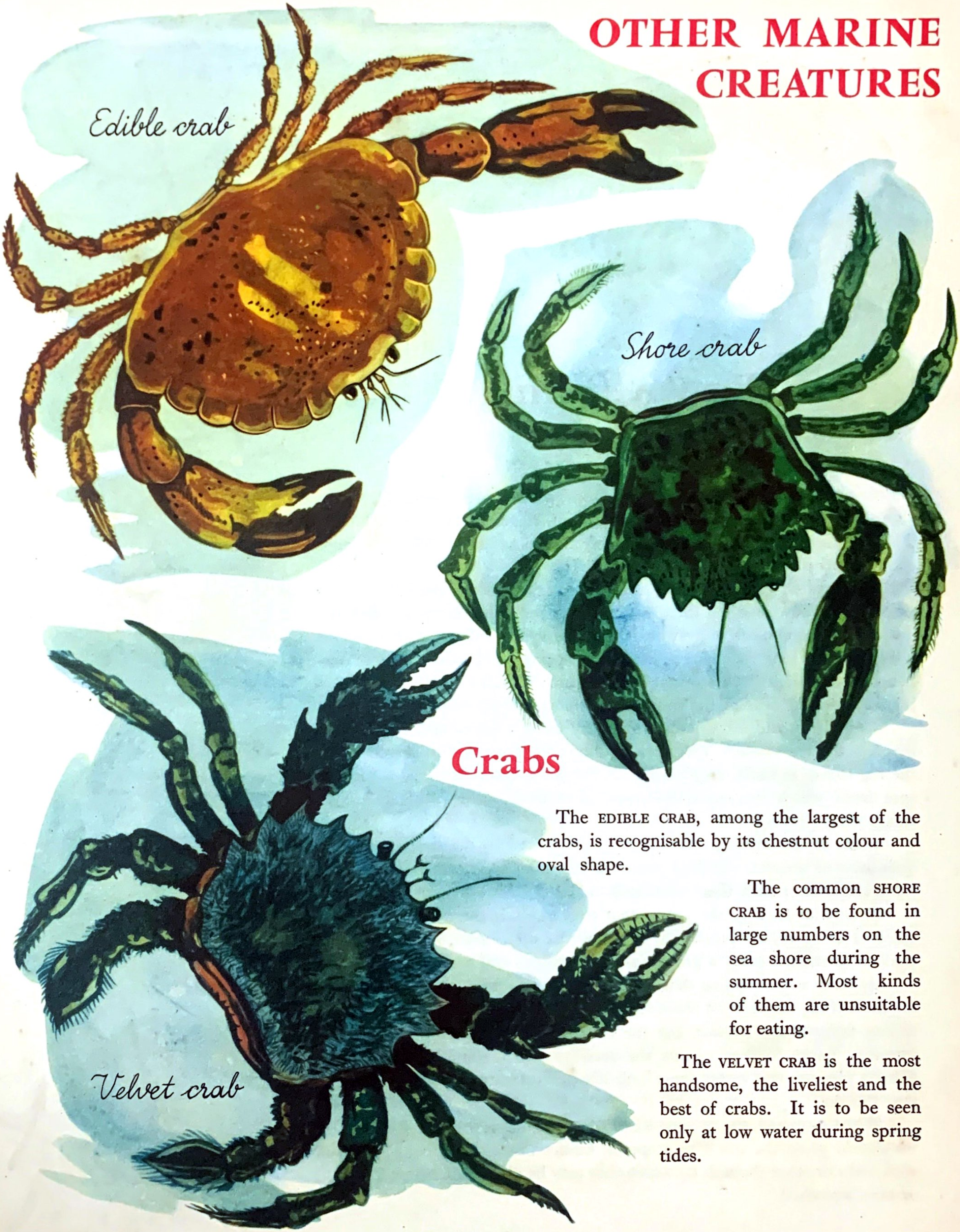
It is a good idea to place the line across a pool that remains at low tide. In these favourable spots where flat fish like to come at high tide, it is easy to extend a line as shown in the sketch.

The hunt for lugworms to put on the hooks is often a long and tedious job, unfortunately unavoidable, for there is no substitute. It is possible with a fairly large worm to cut it in three to bait three hooks. The worm's tail, which is always full of sand, is no use, for the fish won't touch it. Some anglers bait their lines with shellfish, mussels or pieces of crab. This is a mistake, for such fragile forms of bait cannot be fixed securely on the hooks. Prawns and shrimps soon come to devour them completely, before the flat fish arrive in their wake.



Hooks in various sizes for sea-fishing may be obtained from fishing-tackle shops. A simple method of attaching hook-lengths to the long line is the dropper-knot, which is among those shown on page 71.

OTHER MARINE CREATURES

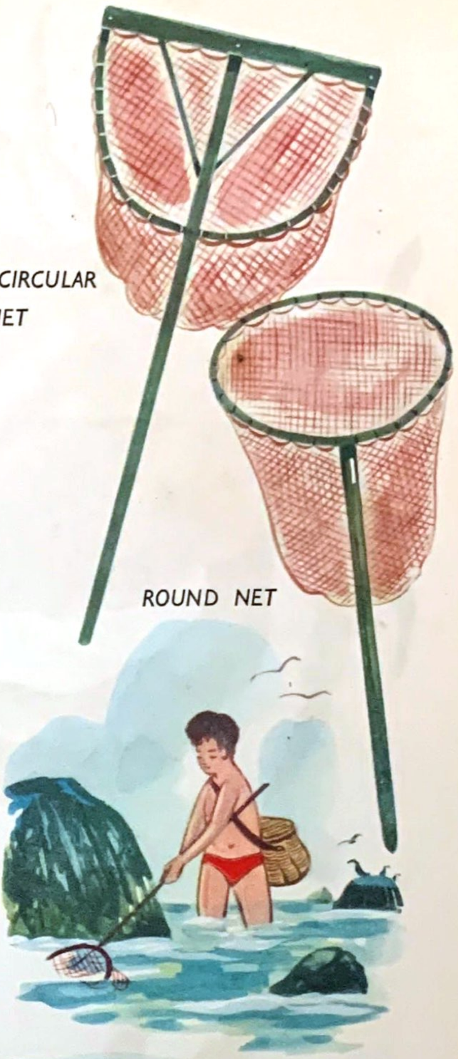


Crabs

The **EDIBLE CRAB**, among the largest of the crabs, is recognisable by its chestnut colour and oval shape.

The common **SHORE CRAB** is to be found in large numbers on the sea shore during the summer. Most kinds of them are unsuitable for eating.

The **VELVET CRAB** is the most handsome, the liveliest and the best of crabs. It is to be seen only at low water during spring tides.



Prawn fishing

It is only after being cooked that the prawn becomes pink. Alive it is almost transparent and is of a greenish hue tinged with blue or amber. This delicate crustacean thrives among the rocks which afford it some shelter, and plays among the seaweed.

How to catch prawns with a drop-net is explained on page 70. Here, we shall see how to catch them with either a semi-circular or a round net. To secure a good catch of prawns, it is necessary to go to work when the sea has gone out a long way, that is, during the spring tide period. The prawn-fisher pushes the net before him and the catch should be large if he makes his way probing around the shingle and among the seaweed-covered rocks.

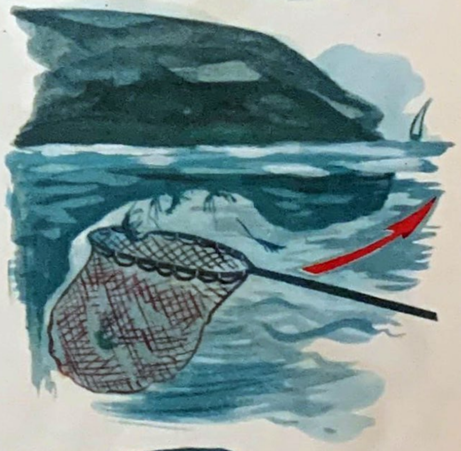
Less tiring and more interesting is by using a round net, which often involves quite a chase. The prawn-fisher is well advised to search under the big stones in fairly deep pools. If the net is quickly pushed across the spot from which the stone has been taken away, it usually catches the stampeding prawns.

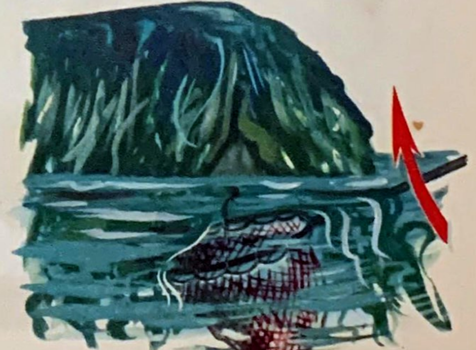
Some of the cracks in the big rocks uncovered by the sea hold sizeable quantities of prawns. Hiding places of this kind are worth remembering, for crustaceans return there after each tide.

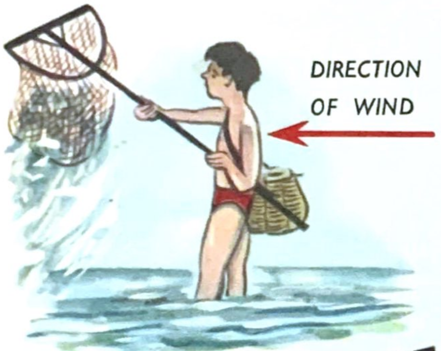
A familiar trick of the prawn that tries to elude the net is to stick to the roof of its hiding place. By scraping the upper part of the hole with the side of the net many a prawn can be dislodged and caught.

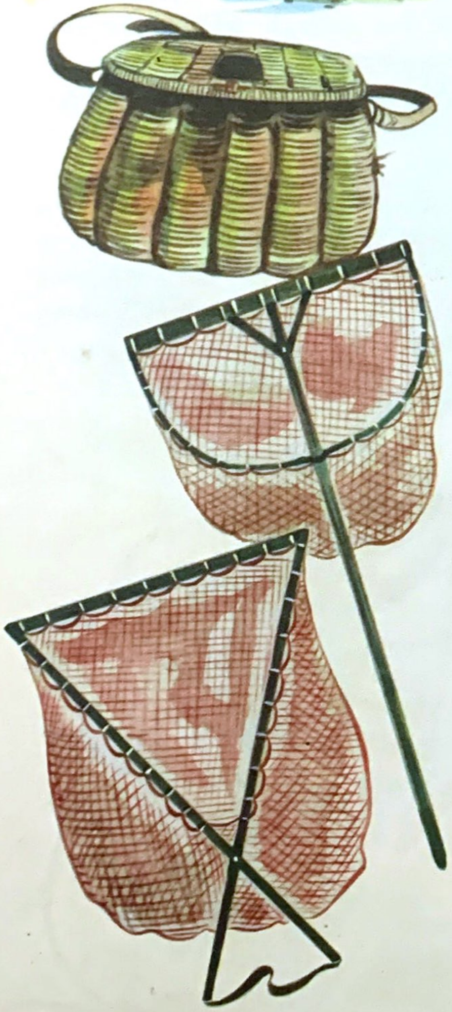
Another way of fishing that can prove very fruitful consists of searching for them along the sides of seaweed-covered rocks. The prawn always tries to rise towards the surface, but the fisherman, working from the bottom upwards, bangs his net against the seaweed and the prawns fall into it. What a pleasure it is to see these long-whiskered creatures pop up and jump into the net.

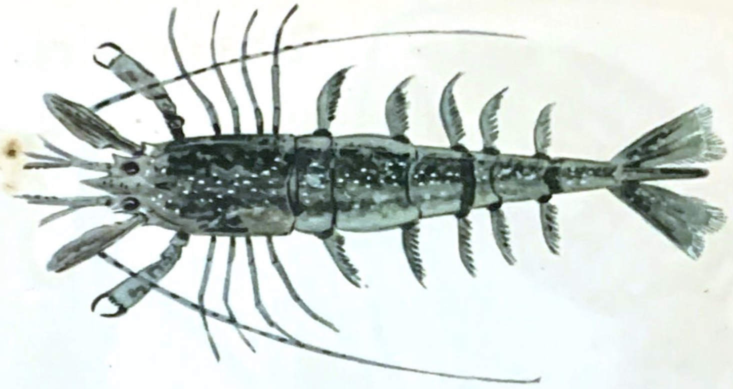
When captured, the prawns merit some attention. As we collect them we should place the catch in a special basket instead of mixing them up with crabs or other shellfish by which they may be ill-treated, eaten, damaged or even squashed.











Shrimping

Much more dowdy-looking, less graceful, but every bit as succulent as the prawn, is its smaller relation, the shrimp.

The shrimp thrives only on beaches of fine sand. Less agile or bold than the prawn, it seeks shelter and protection by burrowing in the sand. It likes lukewarm water; therefore it waits until the first warmth of spring before coming back to the seashore. From the month of October when the cold weather comes, it goes away out to sea again.

Fishing for the shrimp is simple but requires a special net with very small mesh and shaped like a half-moon, although some shrimping nets are triangular in shape, like the one seen below. Of course, the shrimper also requires a basket in which to put the catch.

The best time to go shrimping is at low tide and at the turn of the tide as the sea starts to come in. Stormy and warm weather is particularly favourable, especially if the sea is a little clouded.

The shrimper wades into the water up to his knees and pushes his shrimping net in front of him, parallel with the beach. Because shrimps hide in the sand they cannot be dislodged unless the sea bottom is raked with the fishing net. This is the purpose of the cross-piece on the end of the rod.

It is not necessary to push the net along quickly. In fact, good shrimpers walk at a normal pace and every 20 yards or so lift up the net, with back to the wind, to examine the contents.

Among the sea shells, seaweed and a thousand other marine marvels, the shrimps hop up and down, as if to see which of them does it best. The shrimper confines himself to choosing the best of these. He turns the shrimping net upside down and empties out its contents. He then shakes it in the sea in order to dislodge the pieces of seaweed which are caught up in the mesh and would impede his progress.

Large crustaceans

The LOBSTER is the king of the sea crustaceans. It lives exclusively amongst the big seaweed on the pebble covered sea floor. In exploring the rocks at low tide it sometimes happens that one finds a lobster at the bottom of a big hole, but this is rare.

The CRAWFISH never comes close inshore. It lives in the open sea, swimming from rock to rock like a large shrimp.

The SPIDER CRAB possesses a large round body similar to that of a gigantic crab with long legs and two claws. It is often covered with seaweed or shells. Small spider crabs, which are difficult to find because of their camouflage, are sometimes to be found in rocky channels, whilst the big ones live more in the open sea.

Fishing for all large crustaceans is carried on in the open sea by means of traps called lobster pots. These are so designed that the lobster, attracted by pieces of fish in the pot, can enter without difficulty, but is unable to get out again.

Lobster

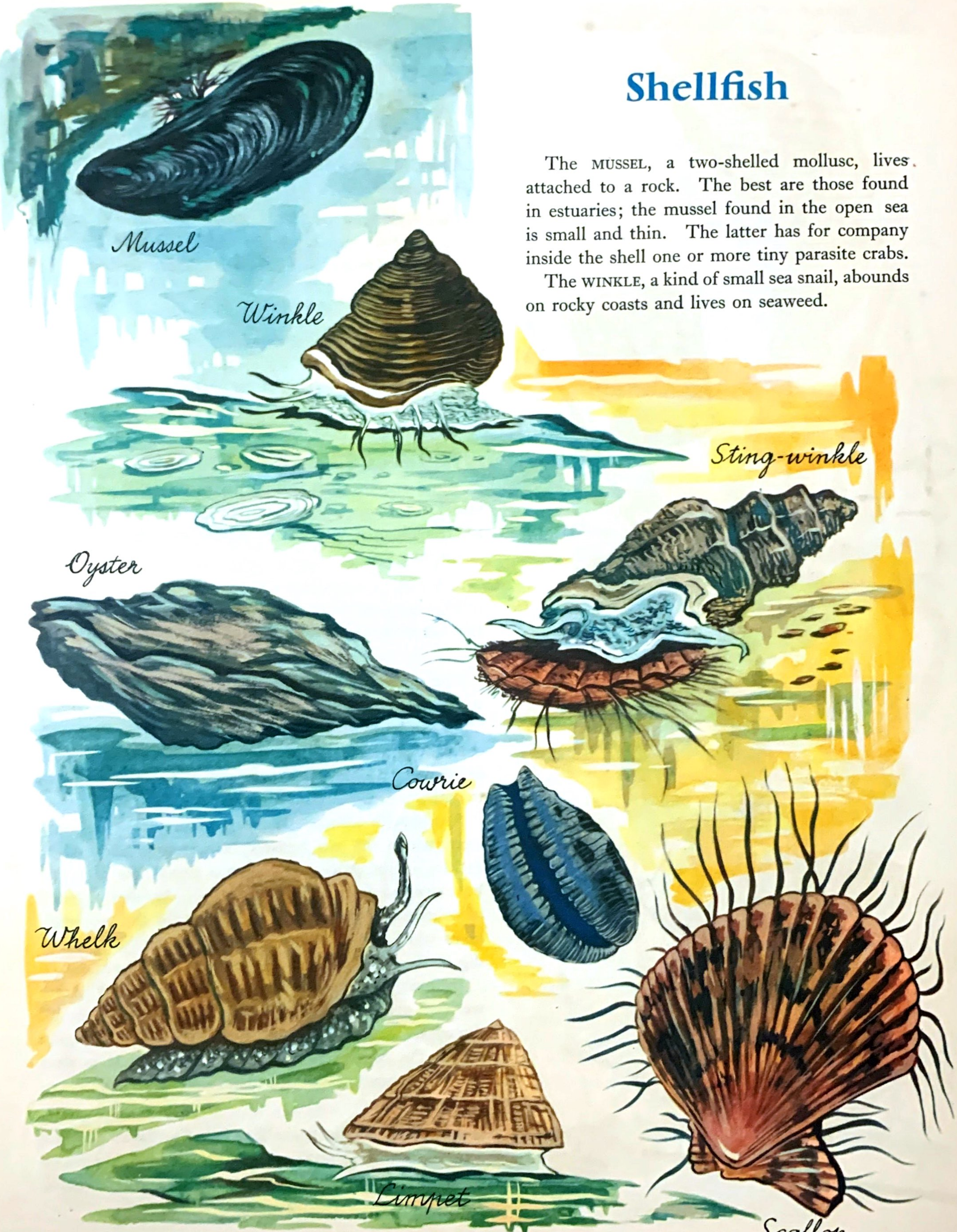
Spider crab

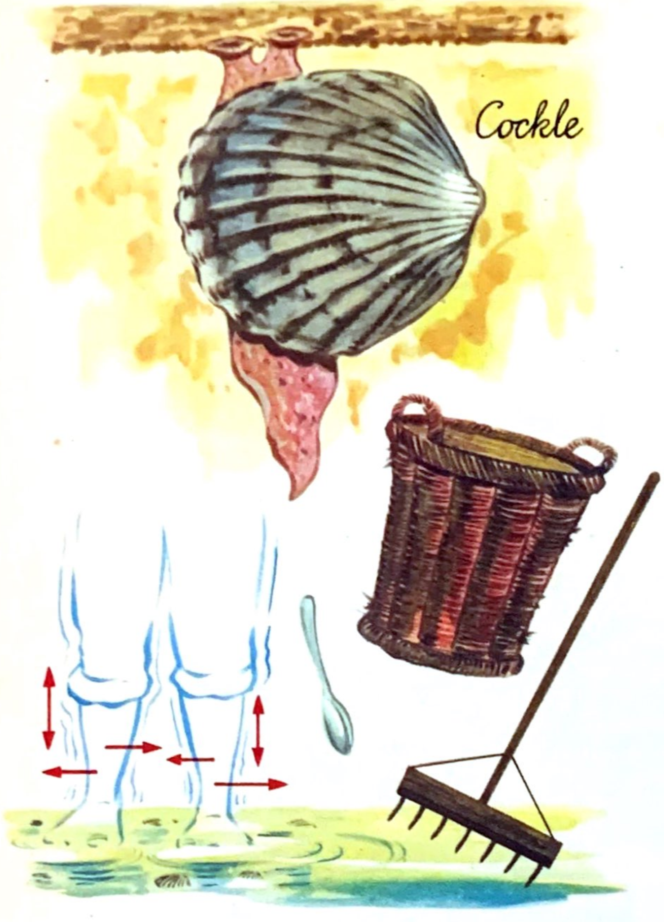
Crawfish

Shellfish

The MUSSEL, a two-shelled mollusc, lives attached to a rock. The best are those found in estuaries; the mussel found in the open sea is small and thin. The latter has for company inside the shell one or more tiny parasite crabs.

The WINKLE, a kind of small sea snail, abounds on rocky coasts and lives on seaweed.





The OYSTER, an excellent mollusc with two shells, harmonizes perfectly with the rocks to which it attaches itself. Universally appreciated, it is an object of intensive cultivation.

The STING WINKLE has a dainty shell, lives on other shellfish in whose case it pierces a small round hole.

The WHELK, a large sea snail, lives on the sandy bottom a fair way from the coast. It is sometimes found on beaches at low tide. When cooked it is excellent.

The LIMPET, a conical shellfish looking like a Chinese hat, is very abundant on rocks, to which it fastens itself. It can be detached by striking a sharp blow on the shell. It is not very good to eat.

The COWRIE is a delightful little shellfish that lives in warm shallow seas. Empty cowrie shells are often found on some beaches bordering the Atlantic and English Channel. Here it is mentioned only on account of its beauty.

The SCALLOP is to be found abundantly in places that are both rocky and muddy. It is excellent to eat.

The COCKLE is widespread on sandy shores, living in colonies that dig themselves in just below the surface. They can be spotted in their hiding place, thanks to two small holes which they leave on the surface. Cockles are very tasty, either raw or cooked, and it is very simple to gather them.

Armed with a basket we make our way over the sand from which the sea has receded at low tide. Here cockles are plentiful. By using a small rake they can be extracted from the sand easily. Another method of collecting them consists in looking for the two small holes which betray the presence of the mollusc, and to dig in the sand with a small spade to extract them.

In places where the sand is soft and very damp we can even use our feet, by moving them in all directions so that they sink in slightly. This operation causes the cockles to rise to the surface. It is then only necessary to bend down and pick them up.

The CLAM, a delicate shellfish found on rocky beaches, lives among the gravel and pebbles around big rocks. They are found in plenty not far from the coast, especially close to river mouths and freshwater streams. In burrowing in the sand the clam, like the cockle, leaves two small breathing holes. With good eyesight and careful observation one can find them simply by spotting the holes and digging with a spoon.

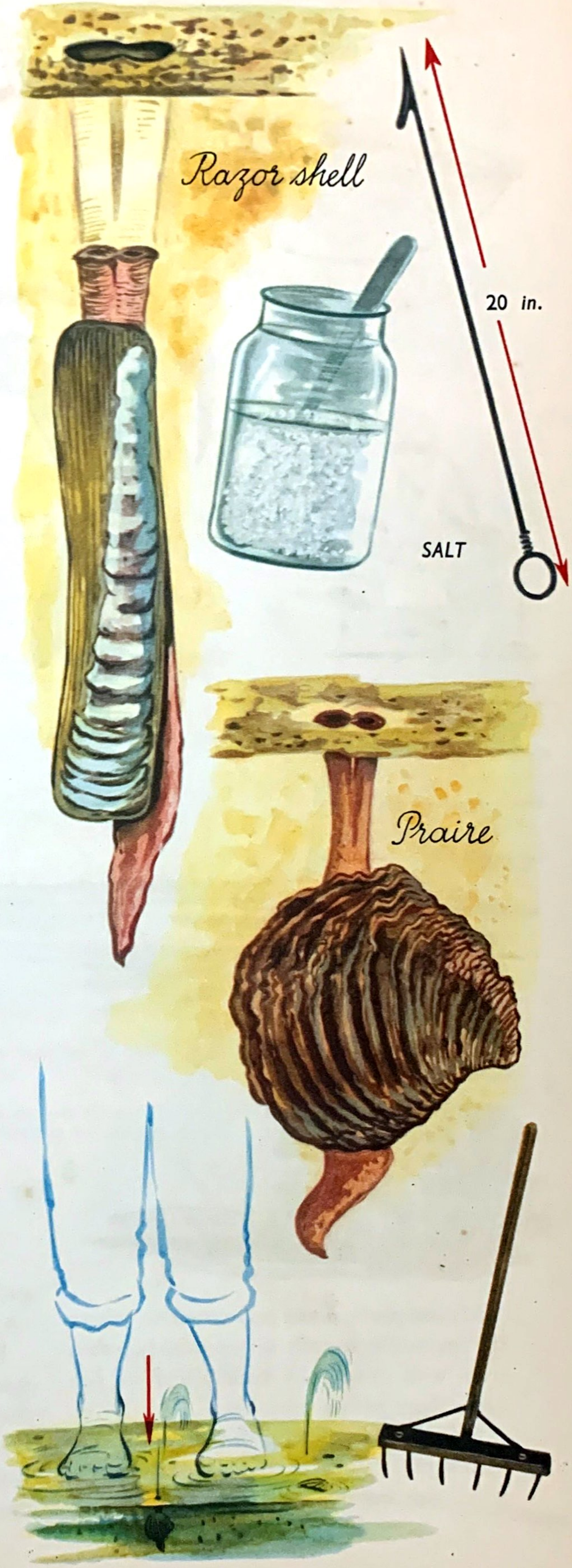
Where clams are numerous they can be collected by raking the gravel to a depth of a few inches with a rake or hoe.

The RAZOR SHELL is a rather curious shellfish. The empty shell is often to be found on British beaches. It lives in the sand close to low water mark, so it is best sought in periods of spring tides.

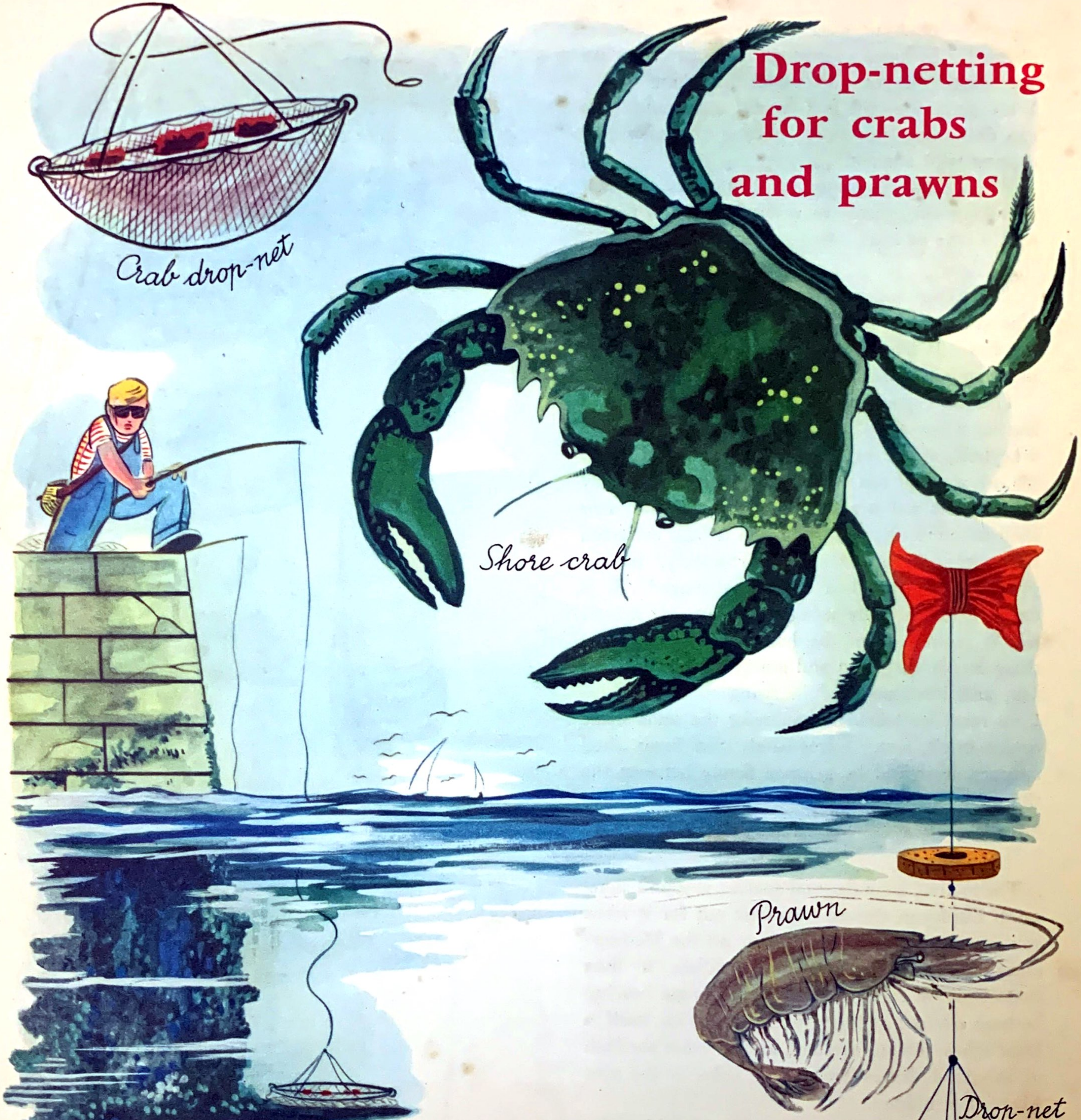
The razor shell digs very deeply into the sand leaving a fair-sized hole, which looks a little like a keyhole, at the surface. To catch a razor shell we use a metal rod with a hook at the end. By pushing the rod straight down the hole the razor shell becomes impaled on it, and is then extracted from its hiding place. Unfortunately, in the process the razor shell is badly damaged. It is easier to catch it by using table salt. If a little salt is poured down the hole, the razor shell is disagreeably surprised and stung by the excess of salt, and loses no time in rising to the surface. Care must be taken not to make the sand shake under one's feet. Immediately the razor shell appears, it should be gripped firmly between the thumb and first finger. It can then be pulled out easily by tugging firmly.

The PRAIRE, a continental species, is found along south European shores. So look out for it when you spend a holiday in Spain or on the Mediterranean coast. An excellent shellfish, it lives exclusively on rocky coasts where shingle beaches become covered at high tide. It buries itself a little below the surface and, like all other shellfish of this kind, leaves two small holes at the spot where it is hidden.

Searching for them is done by scratching the sand with a rake. More amusing, though, is searching for spurts of water. As one walks close to a praire buried under the sand, it feels the tremor of the surface and is seized with fear. The praire hastily closes its shell and causes a little jet of water to appear on the surface of the sand. It is sufficient to rake around the spot where the jet of water was seen in order to uncover the shellfish.



Drop-netting for crabs and prawns

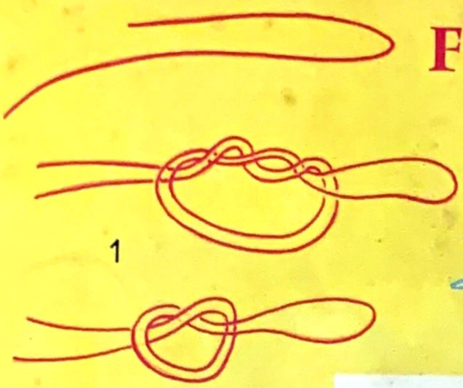


Marine ports, docks and estuaries, where the sea bed is usually rather muddy, often teem with crabs. In such places we can catch them with a drop-net.

Attach pieces of meat to a thread strung across the mouth of the net, and lower it to the bottom. Soon the crabs will gather round to feast upon the bait. Haul up the net and select the crabs you want.

Prawns, too, can be caught in this manner from rock pools at low tide. For these, the drop-net is of closer mesh, and the bait is crabmeat. The net must be hauled up quickly, or the captives may escape.

FISHERMEN'S KNOTS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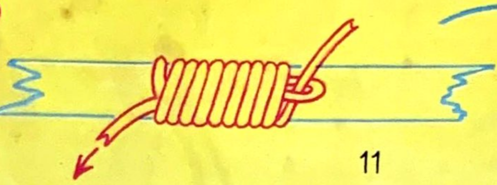
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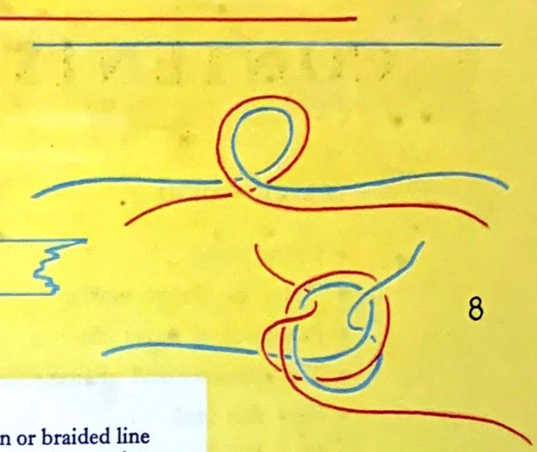
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1. **Loop knot.** This is used at the end of a linen or braided line to enable the trace, or cast, to be attached to the line. On a nylon line the loop needs to be doubly wound.

2. **Half-blood knot.** A simple way of attaching the trace or cast to the line. The second sketch shows the recommended form for nylon.

3. **Simple dropper-knot.** A quick-release knot for attaching hook-lengths to a long braided sea line, not suitable if the main line is a nylon one.

4. **Clove-hitch.** This is commonly used for securing a mooring rope to a waterside post or rail.

5. **Attaching knot.** This variation of the simple dropper knot (3) is often used by the fly fisherman to attach cast to the loop at the end of his line.

6. **Link-knot.** A knot used in joining together two lengths of nylon of approximately equal thickness.

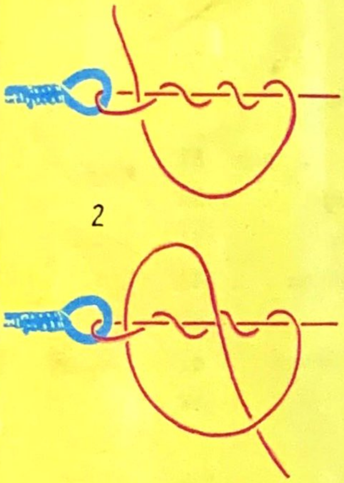
7. **Link-knot.** This knot, a variation of the previous one (6), should be used for joining together two nylon lines that are of different thickness.

8. **Simple link-knot.** This is sometimes useful for linking together two lengths of nylon that are too thin for one's fingers to manipulate.

9. **Domhof knot.** A knot for those who prefer to tie their own spade-end or eyed hooks to nylon. The nylon is doubled back along the hook shank, and the free end is wound round and round down the shank, and finally inserted through the bottom loop.

10. **Hook knot.** This is an alternative method of hook tying, but is less secure than the Domhof one (9).

11. **Whipping.** This is used mainly on rods for securing the shanks of rod-rings, or as individual binding for strengthening the rod.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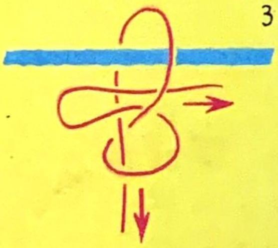
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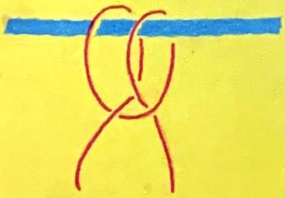
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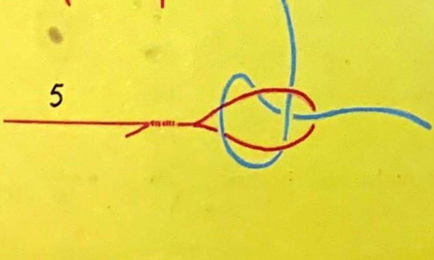
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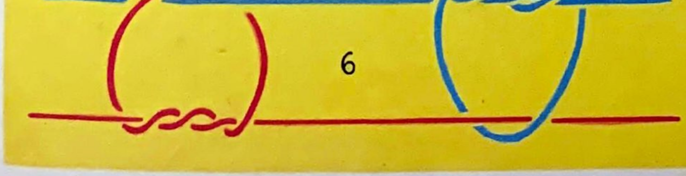
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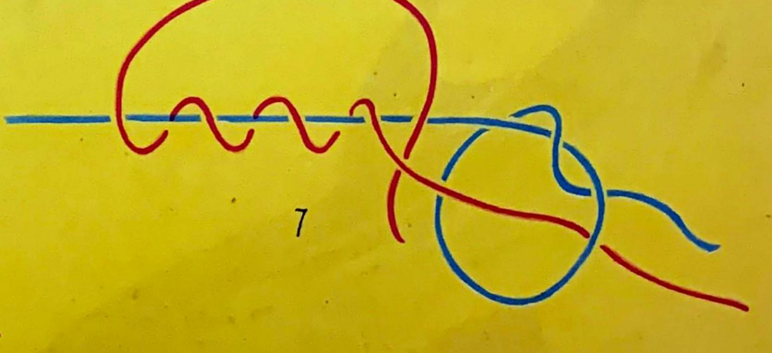
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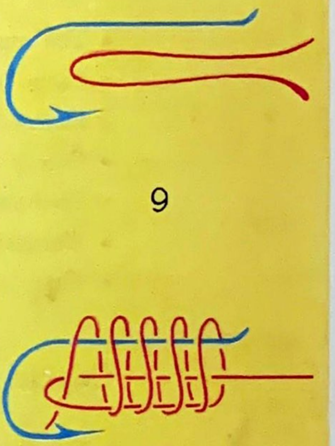
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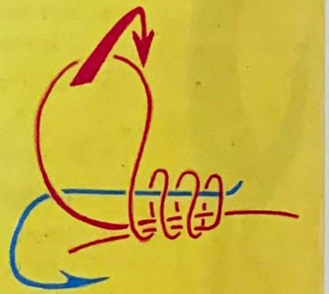

10

CONTENTS

Water world

- Living water *page* 2
- Water is always moving 3
- Panorama of water life 4
- The character and anatomy of fish 4
- How fish feed 6
- How fish breed 8

Freshwater species

- The smaller freshwater fish 10
- Large freshwater dwellers 12
- Freshwater midgets 13
- Greedy freshwater fish 14
- Freshwater wolves and tigers 16
- Waterside companions 18
- Three methods of freshwater fishing. 21

Coarse fishing

- Fish for the frying-pan:
  - Bleak, small roach, pumpkin-seed 22
  - Minnows and gudgeon 24
- Mid-water fishing for roach, bream and nase 26
- Fish that feed on the bottom: carp, barbel, tench 28
- Hempseed fishing for roach 30
- Fishing with livebait for pike 32
- Surface fishing for bleak, rudd, chub and dace. 35
- Angling for perch 36

Game fishing

- Trout fishing *page* 37
- Catching trout with minnows 38
- Fishing with an artificial fly 41
- The life and migration of salmon 43
- Salmon fishing 45
- Fishing with plugs and spinners. 47
- Drop-netting for crayfish 48

The home aquarium 49

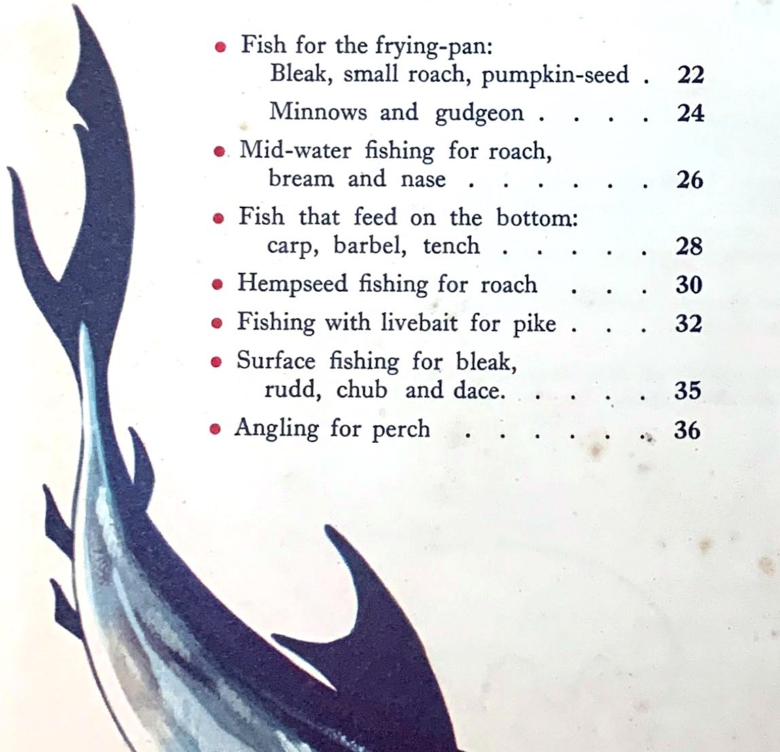
Marine species

- Big deep-sea fish 50
- Mid-water sea fish 54
- At the bottom of the sea 57
- Fish that haunt the rocks 59
- Flat-bodied fish 61

Other marine creatures

- Crabs 63
- Prawn fishing 64
- Shrimping 65
- Large crustaceans 66
- Shellfish 67
- Drop-netting for crabs and prawns 70

Fishermen's knots 71



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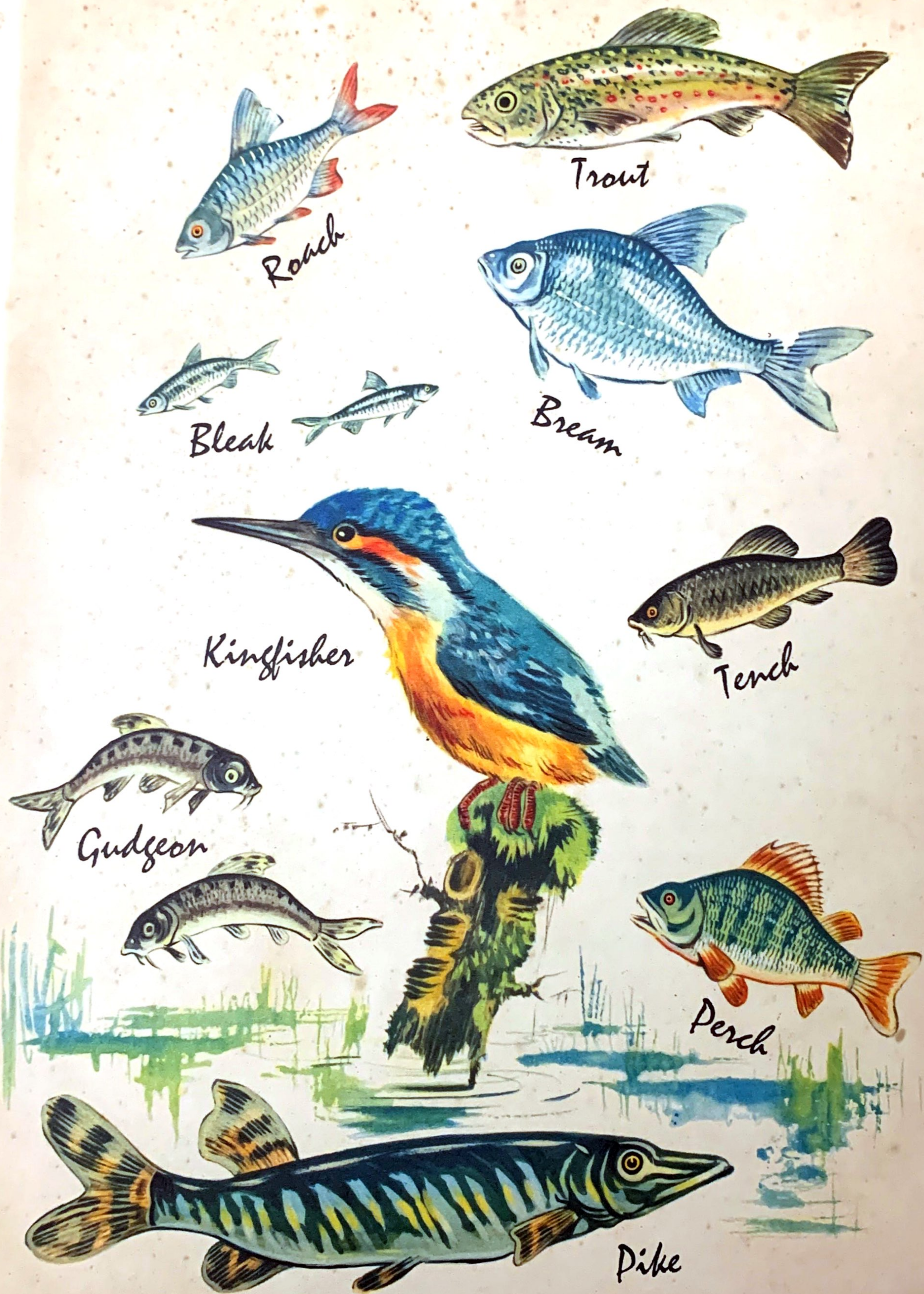
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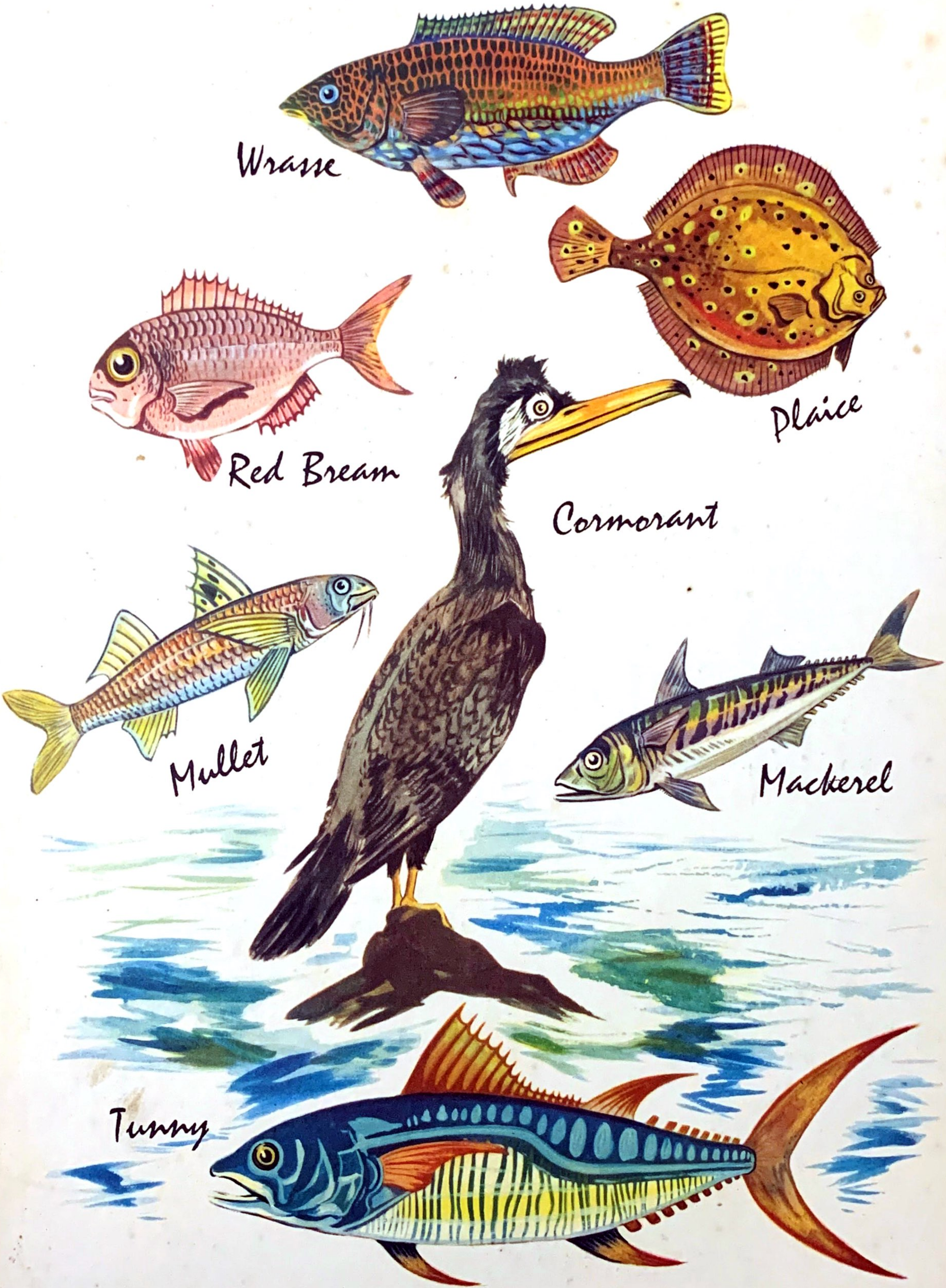
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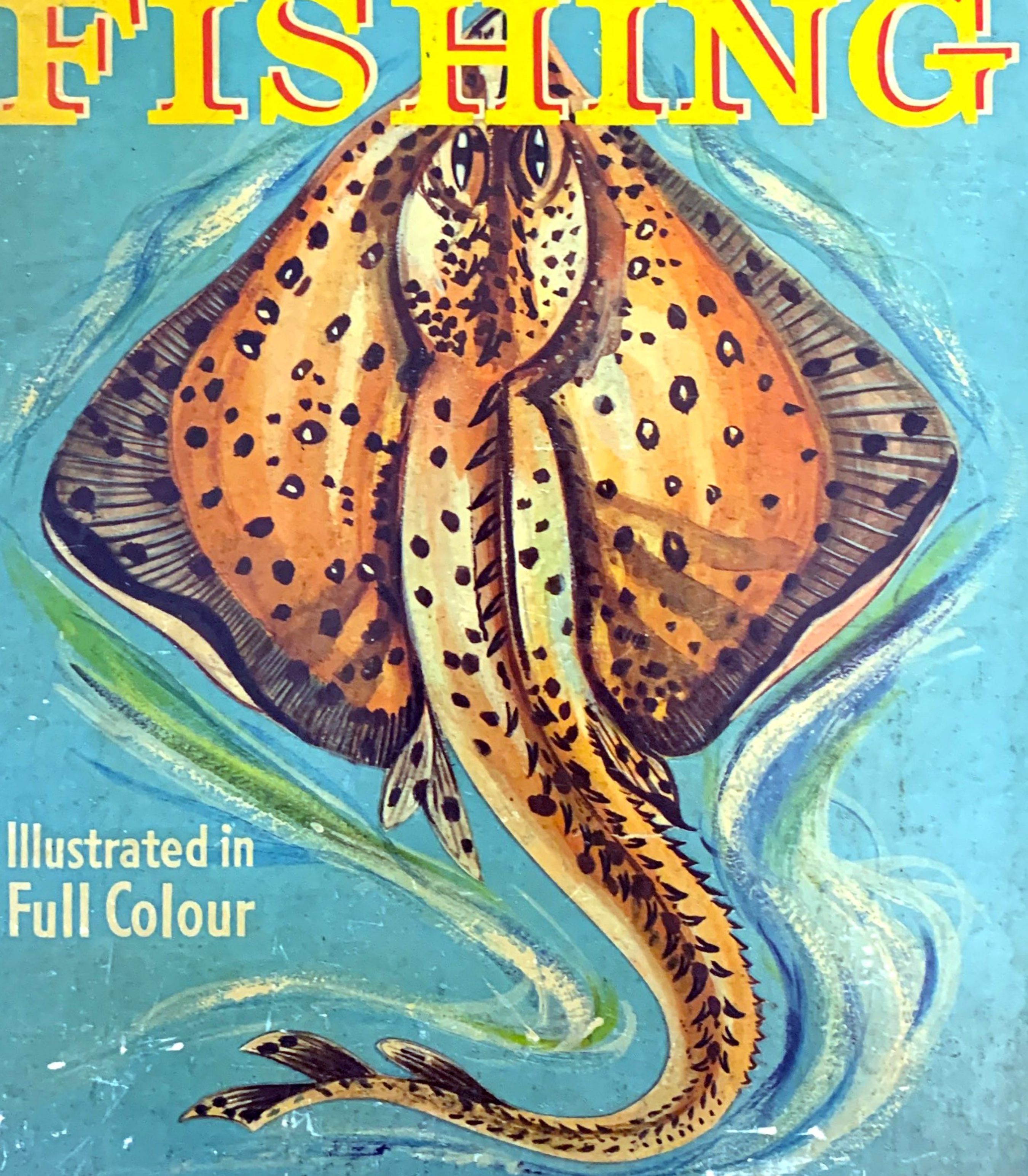

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